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U.S. DEVELOPMENT ASSISTANCE AND ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

HEARINGS

BEFORE THE

SUBCOMMITTEE ON
INTERNATIONAL ECONOMIC POLICY, TRADE, OCEANS
AND ENVIRONMENT

OF THE

COMMITTEE ON FOREIGN RELATIONS
UNITED STATES SENATE

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U.S. DEVELOPMENT ASSISTANCE AND ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

WEDNESDAY, APRIL 13, 1988

U.S. SENATE, SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY, TRADE, OCEANS AND ENVIRONMENT OF THE COMMITTEE ON FOREIGN RELATIONS,
Washington, DC.

The subcommittee met at 10:05 a.m. in room SD-419, Dirksen Senate Office Building, Hon. Terry Sanford (chairman of the subcommittee) presiding.

Present: Senators Sanford, Pell, Dodd, and Lugar.

Senator SANFORD. The committee will please come to order.

This is a hearing of the Subcommittee on International Economic Policy and Trade, Oceans and Environment. We have an agenda that, if you have a printed copy, we have slightly altered.

We will start with the panel of the Agency of International Development and the Department of the Treasury, Dr. Acker, and Mr. Malpass. Then we will proceed to Mr. Speth and Mr. Lester Brown.

I want to especially thank and recognize the representatives of the following countries who are represented here, who participated in the World Commission on Environment and Development or participated in some other phase of the studies leading up to these hearings.

Ambassador Sahnoun from Algeria is here. He was a participant on the World Commission on Environment and Development, and we are especially delighted to have him. I also wish to acknowledge representatives from Norway. It was the Prime Minister of Norway, Mrs. Brundtland, who presided over the Commission. I also wish to recognize the representatives here from Canada, Finland, Zimbabwe, Brazil, Colombia, and Denmark.

I am pleased to have all of you here today and am grateful for your interest and for your attendance.

I am pleased to have the opportunity to welcome all of you to this discussion on the issue of environmentally sustainable development. That is to some people a new combination of words. It is a fairly simple proposition—how to sustain economic growth and meet basic human needs while also ensuring protection to the environment.

It is not, of course, simple. And there is now mounting and alarming evidence that in our attempts to meet our food necessities and shelter and economic needs, we are engaged in dangerous tradeoffs that could leave our environment permanently damaged.

Recent environmental disasters, such as the Bhopal chemical and Chernobyl nuclear accidents, the devastating drought and famine in the sub-Saharan Africa, new scientific evidence of the depletion of the fragile ozone layer are dramatic and in being so have masked the other quieter, but no less serious, environmental crises in the world today.

Forest cover, for example, is being lost to agricultural expansion—and often on marginal unproductive land, at the staggering rate of 11 million hectares a year. If that rate continues every three decades we will have diminished the world's forest by a land area the size of India.

If the world is to cope with the burgeoning growth in its population from some 5 billion today to at least 8 billion by the middle of the next century, we are going to have to find ways to safeguard our fragile ecosystem while enhancing economic growth and opportunity.

That means a different way of doing business. Both donors and recipients of economic assistance are going to have to reformulate their priorities to give new emphasis to sustainable development projects, agricultural methods that do not leave the soil depleted, waterways polluted.

These methods must be implemented if the world is to feed twice as many people as it does today.

Last year's report of the World Commission on the Environment and Development stated: "Failure to manage the environment and to sustain development threaten to overwhelm all countries." Environment and development are not separate challenges—they are inexorably linked. Development cannot subsist upon a deteriorating environmental base.

The Congress has taken account of this mounting concern amending the foreign assistance legislation to require environmental impact assessment for our major bilateral aid projects, and to expand the scope of A.I.D.'s mandate to include biological diversity and preservation of endangered species and tropical forests. Just last year additional legislation was passed that is designed to ensure environmentally sound approaches in the multilateral development bank portfolios as well.

It is my hope that this subcommittee hearing will be our first examination of how we are planning to cope with new strategies for environmentally sustainable development, and to explore possible new legislative initiatives or support that may be needed.

As foreign aid resources continue to contract in the face of severe budget pressures here at home, we must ensure that every dollar we provide is used not only for economic growth, but for the preservation of the environment as well. The broader question, I suppose, is how do we develop a sense of urgency with the people in this country, the people in government, the people in the world about the need to protect the environment to a degree we have never understood before.

So I welcome you here and invite discussion by the first panel, beginning with Dr. Duane Acker, Special Assistant to the Administrator for Agriculture for the Agency for International Development. Next will be Mr. David Malpass, the Deputy Assistant Secretary for Developing Nations in the Department of the Treasury.

Before you start, we have an 11:00 a.m. roll call, and I will at that time, somewhere between 11 and 11:10, take about a 5-minute break.

I would suggest, as you find it comfortable, but only to the degree that suits your own desires, that you sum up what you are talking about and we will then discuss it a bit. Following that testimony, which will be recorded in the record, we will print your full formal statement.

Or you can go with the full formal statement, as you see fit.

Dr. Acker, would you please begin.

STATEMENT OF DUANE ACKER, SPECIAL ASSISTANT TO THE ADMINISTRATOR FOR AGRICULTURE, AGENCY FOR INTERNATIONAL DEVELOPMENT

Mr. **Acker**. Thank you, Mr. Chairman. We appreciate the opportunity to testify, and you have outlined very well the problem and the situation. So I will move through rather quickly.

As a relative newcomer to the agency and one who has watched the agency from the university setting over the years, I would observe that the Agency for International Development has demonstrated by both its behavior and its policies a sensitivity to environmental issues.

I cited in the written testimony several policy and issue papers, and there are of course many others. We have also been helped by many of the world's leaders, and organizations and publications—you mentioned the World Commission on the Environment and Development—many U.S. environmental and national resources and private voluntary organizations, and certainly the Board for International Food and Agriculture, which is holding a forum here tomorrow morning on sustainable agriculture, our science and technology research advisory committee of the agency, a special task force of the international agricultural research centers, and the Committee on Agricultural Sustainability for Developing Countries, that committee being comprised of a number of leading U.S. natural resources and private voluntary organizations.

The agency has demonstrated its concern and carried out its responsibilities for the environment and natural resources in the development effort in two ways. One is efforts directed to the natural resources themselves—reforestation, inventorying soil resources, preservation of biologically diverse entities, et cetera—and second, in the design and the conduct of projects that exist for such purposes as increasing food production or job creation or other institutional building.

Specifically, I would offer a statement worked out recently by some of the staff in the agricultural programs of the agency. The focus statement for the agricultural programs is to increase the income of the poor majority, expand availability and consumption of food, while maintaining and enhancing the natural resource base.

I will cite here orally just a few of the illustrations, some specific projects of the agency that illustrate AID's activities that are directed to helping achieve environmentally sustainable development.

A forestry outreach program in Haiti, where more than 14 million trees have been planted on hillsides by small farmers, with support by private voluntary organizations and financed by AID These trees provide sustainable income while reducing soil erosion, thereby enhancing the sustainability of hillside agriculture.

The key point here is that by producing stronger and healthier trees, they have increased the efficiency of the nursery and planting or survivability by 12 times.

Our Office of Energy in the agency offers assistance to all interested AID countries, primarily in energy efficiency. These efforts in country are aimed at more efficient electrical generation, as well as other endeavors, with the net result being the need for less generation plant construction, less mining for fuel, and reducing CO_2 production and the resultant greenhouse effect.

We also work with industrial processes, buildings, and transportation. An example of that is a slaughterhouse in the Philippines where our staff, through an AID project, helped them to handle their waste more effectively. Waste from a slaughterhouse has a high BOD, biological oxidative demand.

It would overload a city sewer system. They worked out a system to use that waste as an asset. A biogas plant was installed and fueled by the animal waste. The waste was converted to gas, replacing firewood as fuel, and the fertilizer was used by local farmers.

I think that illustrates a need, as we move to urbanization in the developing countries, to consider the handling of waste materials and in the location of processing facilities.

Before joining the agency on a formal basis and since, I have personally observed many AID financed projects. I want to mention just one or two.

One, a high intensity farming demonstration near the Central Luzon State University campus north of Manila in the Philippines, with chickens in cages above rice paddies that doubled as fish ponds, and tomatoes raised on the pond dikes.

The major input, a high quality mixed ration for the chickens; the output, poultry meat, rice, fish, and tomatoes, and the output was large. Nitrogen and other nutrients came in via the feed protein, were cycled through the birds, into the pond, and from the pond water to the rice, fish, and tomatoes.

I mention in testimony some other illustrations I have observed. And my colleagues have described others. We are involved in a good bit of research in technology aimed at sustainable development.

Two, a research project involving the University of Minnesota and an African private voluntary organization has established a unique tree that grows in India and Africa called Neem, that yields an abstract that is effective as a pesticide against 131 species of insects, 45 of which are major agricultural pests, and it is nontoxic to man.

The project also includes research on extraction and efficacy and farmer acceptance of the material. I would like to cite others, Mr. Chairman, but in the interest of time let me move to a few principles that these and many, many other projects illustrate.

I have listed a number in the testimony and I am going to highlight just several. Principle number three that is in my prepared statement, highly productive natural resources must be effectively used in developing countries. If a high quality, well drained soil in an irrigated valley can produce large volumes of food without negative environmental impact, employing it fully and wisely for food production will reduce the pressure, the population pressure, on more fragile land or on similar land that may now support a tropical forest with its great diversity of genetic materials.

Fourth, sustainable development is not necessarily low input or low technology development. There may well be lower input. There would be expected to be lower input of consumable input, lower levels of consumable inputs.

Let me illustrate with sustainable agriculture. Input of technology—and I mentioned earlier rice lines that are tolerant to acid soils, developed at Colorado State University.

Management skill, choosing species for cropping. And there are some instances where labor input may be high in the design and building of terraces or other water-holding constraints.

Fifth, on the Kansas plains or the farm land of North Carolina, the farmer controls the landscape. The same is true of a timber preserve. The person that manages that landscape controls it and makes the daily environmental decisions.

It is my observation that fishermen love the water, timber producers love the timberland, and crop farmers love the soil; and they will fight to protect it if they fully understand the degradation risks and if there is available technology or practices that they feel they are able to use.

And this underlines the importance of developing the appropriate technology.

Sixth, sustainable human settlement is central to sustainable development.

Seventh, the developing country policies are critical to sustainable development, the incentives.

Eighth, that the biological diversity is of value to the United States. And I illustrate with grain sorghum raised on the plains. The disease resistance has come from India, Kenya, Sudan, and adjacent countries in recent years.

You asked specifically for some comments on multilateral development banks. This may well be covered in more detail by others. We are pleased and proud and feel very positive about our participation by our staff in the monitoring of these projects, and that is cited in my prepared statement.

And the report of the World Commission on Environment and Development, indicating that the report has many positive points, particularly the report's expression that concern for the environment should be incorporated in all sectors. That is certainly consistent with and supports AID's efforts to integrate concern for the environment into all of its development assistance activities.

Mr. Chairman, I appreciate the opportunity to present this testimony. Thank you.

[The prepared statement of Mr. Acker may be found in the appendix.]

Senator SANFORD. Thank you very much.

Let me, if I may, just ask a couple of questions to add to the record. You have mentioned the World Commission on Environment and Development report. Has there been—and I am aware of the fact that Mr. Allen Hill of the Council for Environmental Quality, under White House supervision, has made a statement to the United Nations General Assembly.

But has AID made any type of formal program response to that report?

Mr. ACKER. It is my understanding, Mr. Chairman, that AID participated in the drafting of the U.S. position which identifies a number of the positive issues in the report.

Senator SANFORD. But after the report was made, you have not responded to the total report with any kind of formal response.

Mr. ACKER. I am unaware of any further formal response by the agency. I would ask if any of my colleagues—if there is, we are not aware of any.

I would say that the main issues in the report are so consistent with the behavior of AID and other policy documents that, well, it underlines a parallelism.

Senator SANFORD. Yes, but on the other hand, the whole purpose of the report was to highlight these worldwide needs and to bring about as much response from various countries around the world as possible.

Mr. MALPASS. Mr. Chairman, the U.S. did support a 1987 U.N. resolution on that report, supporting some of the goals of the report. And we were happy to have been able to comment on it and participate in it.

Senator SANFORD. Well, thank you very much.

Now, I hope you will understand that I am not berating AID I think they have done a wonderful job, and I hope you noticed when I said, initiatives by Congress, I also said additional support by Congress.

So we are looking at ways to do something that has not been done adequately, admittedly, simply for other reasons. We have never quite understood the tradeoffs between development and maybe grew up thinking development was all right and environment would take care of itself.

So the questions I ask are in that spirit of where do we go to improve whatever needs to be improved.

May I ask what AID has done to implement the appropriations legislation of last year which requires operating the early warning system, review of the MDB projects, and compiling a list of MDB loans likely to have adverse impacts on the environment?

And second, has any resources, including professional staff, been provided to regional banks.

Mr. ACKER. Well, Mr. Chairman, the agency has employed Dr. Quant as a staff officer to work with the inter-agency group, along with State and Treasury, to assist in monitoring the projects that are proposed by the banks, and well before they come forward for approval and for action.

Dr. Quant utilizes a number of staff within the agency, both in Washington and the missions. And once projects are identified that may have potential environmental risks, then cables are sent to each of the missions.

And we have the advantage, sir, of having staff on site in many instances, specialists in the area, who are able to comment on these. This information then is shared with other staff in Washington and with the other agencies, and then through the group, the coordinating group and the executive director of the banks, the concerns are expressed.

So it's my observation and I think the evidence indicates that in the reports to Congress that have been made, I believe each 6 months, that the monitoring is really—of course, the purpose is to elevate the sensitivity, and I believe that has been a consequence.

Mr. MALPASS. In our view, the system is in place and working. We have a weekly meeting in which AID participates, where we discuss specific projects and the results of some of the information that we have been able to develop.

As far as AID's staffing, it is my understanding that AID has seconded an environmental person to the African Development Bank, who is actively working there on environmental issues.

Senator SANFORD. Well, thank you very much.

The BIFAD report talks about a great many things, and it has been mentioned in passing here. But knowing something about the problems of bureaucracies, the report states that AID does not have long range agricultural development strategies.

That raises a challenge, and it also raises a question. Does AID agree with that? Does it take seriously the recommendation to incorporate environment and natural resource considerations into all agricultural and rural development projects?

Mr. ACKER. I guess, Mr. Chairman, that is one of the reasons for my new position. And it is my observation there are many, many documents and pieces within the agency that point toward environmentally sustainable agriculture and many, many sincere and thorough efforts.

I cited one in my oral testimony, the focus statement that mentions to maintain and enhance the natural resource base. But our goal, of course, is to devise a succinct statement that is clear and communicates effectively, both within and outside the agency.

Senator SANFORD. Several years ago in North Carolina we had a great effort to bring in new economic development, and it was a tremendous effort to try to diversify the economy and to build up economic opportunities. And it was in a department called conservation and development.

Most of the development people wanted to separate that, because conservation got in the way of development. And we insisted that the two had to go together. And that brings me to the science and technology bureau, where you have got agriculture and environment separated in a way that I am told makes it very difficult for agriculture to understand what environmental people are saying and vice versa.

Can problems like that, if they do exist, be overcome by your office?

Mr. ACKER. Yes, Mr. Chairman. And I would say in my observation the problems are relatively minimal. For example, Dr. Jack Vandran, who is the agency's director for energy and natural resources, is with me here today. And Jack and I, when I was in my former position with food and agriculture, worked very closely together along with our counterpart in rural development.

I observed that in this bureaucracy, as in universities, a proximity and human relations are the most important issues, and we hope that the organizational structure might be in fact secondary.

Senator **Sanford**. Well, thank you very much. It is good to know that you are working on all of those things.

I am pleased to see the Chairman of the Foreign Relations Committee has come in, Senator Claiborne Pell. He has certainly been a champion of environmental issues and one of the great strengths of seeing that this Congress keeps its eye on environmental concerns, and I am certainly pleased to see him here today and appreciate his attendance.

And I wonder if you have anything to say, Senator Pell?

The **Chairman**. Thank you very much, Mr. Chairman. I congratulate you on holding this hearing and bringing more attention to this tremendous problem of international environmental issues.

We worry a lot about domestic environmental issues, but overriding those issues very often are the international concerns that we tend to ignore all too often.

I was just curious about one matter, and that is in connection with my amendment concerning biological diversity, how is that being administered in the administration? Or could you just give me a little progress report?

Mr. **Acker**. Mr. Chairman, with your permission, I would like to refer that question to Dr. Jack Vandran, who has been much closer to that in the administration. I think he could be more succinct.

Mr. **Vandran**. Mr. Chairman, the agency has set up an internal working group on biological diversity. The agency has committed in fiscal year 1988 to spend $4.5 million in this area, and we are just now making the review of the various proposals before us, many of which have strong financial support as well from the external communities, like the World Wildlife Fund, Fish and Wildlife Service, and others.

We issued a report to the Congress last year and we will shortly be sending you up a report on our fiscal 1987 activities.

I think the area of biological diversity has taken very much hold in the agency. We are closely working with our field missions in this area and many of our programs are incorporating very strong concerns for biological diversity.

The **Chairman**. And the concern—as you move ahead with your projects, your AID projects, I believe also there is an amendment that I had a hand in calling for assessing the impact of these programs on the environment. Is that moving along?

Mr. **Vandran**. Clearly, the biological diversity and environmental considerations are very closely connected. For example, if we are concerned about deforestation, part of that concern comes about because of the potential loss of species in the tropical forest.

So the general area of environmental conservation and biological diversity are very much linked together.

The **Chairman**. Thank you.

Thank you very much, Mr. Chairman.

Senator **Sanford**. Thank you.

I note with pleasure that Senator Lugar has arrived, who is a person also that has long understood the requirements of protecting the environment. I am delighted that you are here and I invite you to make any statement or ask any questions.

Senator **Lugar**. No. I just congratulate you, Mr. Chairman, on conducting this hearing. I look forward to participating in it.

Senator **Sanford**. Thank you.

I want to ask Mr. Acker just one more question or I might get in trouble with Patricia Schroeder, who has, along with Mickey Leland, introduced a bill, that would assist third world women.

I noticed when I was in Africa recently that the women did most of the work. And while that is probably so in this country, it is less obvious.

We are not holding a hearing on her bill and you may not even be familiar with it. But what can AID do to integrate women more fully into the development process, for example agricultural projects?

Is there some way to add to their effectiveness, efficiency? Or is this really a wasted resource that we are not properly considering?

Mr. **Acker**. Well, Mr. Chairman, just based on my own experiences and recent conversations with Allan Woods, our administrator, he observed to me that there are so many, many ways in which women are involved in the development process that we do not record, so we probably do not have a good measure.

I have illustrations in my written testimony. A woman farmer in Swaziland—my point is simply, they are there. They are doing the tasks, whether it be in production or in the educational system.

It is my observation that the United States is one of the later countries around the world, both developing and developed, which has utilized women professionally in the natural resources and agricultural disciplines. But fortunately, in the last 10 or 15 years the numbers have increased very sharply.

So my response would be simply full integration.

Senator **Sanford**. Thank you very much.

Mr. David Malpass is Deputy Assistant Secretary for Developing Nations, the Department of the Treasury. And we invite you now to make any statement you care to make.

STATEMENT OF DAVID MALPASS, DEPUTY ASSISTANT SECRETARY FOR DEVELOPING NATIONS, DEPARTMENT OF THE TREASURY

Mr. **Malpass**. Thank you, Mr. Chairman. I am pleased to participate in these hearings. I share many of the concerns you mentioned in your opening statement and would like to focus today on what we have done to implement the congressional mandate to promote environmentally sustainable economic growth and improved management of natural resources.

This mandate has been clear and strong and it has been a major theme in our management of U.S. participation in all of the multilateral development banks.

As you know, the multilateral development banks, or MDB's as I will call them, include the World Bank and the three regional banks, the Asian, African, and Inter-American Development Banks.

There is very little disagreement on the urgent need to address environmental issues. We share the goals that have been outlined by Congress and members of the environmental community.

Our policy on the MDB's has been to seek to mitigate or eliminate such adverse effects in the development projects and programs and to support national and regional programs to improve environmental management. This has meant the structuring of programs that encourage growth and reduce poverty, while still protecting and preserving the natural resource base.

The first congressional mandate for environmental action in the MDB's was included in the fiscal year 1987 CR in 1986. This legislation provided that the Secretary of the Treasury should instruct the U.S. ED's in the banks to promote a number of specific and detailed reforms. They are listed in my prepared statement.

A report detailing progress was submitted to the Congress in January of this year. I will return to it in a few minutes, to the subject of that report, and provide some of the details of the progress that is being made.

The second congressional mandate on environmental reforms was included in the fiscal year 1988 CR. This legislation restated many of the reform objectives outlined in the previous year's continuing resolution and made them a part of the permanent authorizing legislation.

It also provided for a number of other initiatives, which are listed in my prepared statement. This legislation took effect in December 1987.

We have already begun to implement some of these initiatives, but action still remains to be taken in other cases.

It is clear from this brief summary, Mr. Chairman, that a great deal of legislation is already in place. I want to assure you that we are making a conscientious effort to implement it.

In fact, I believe we should make implementation our primary objective and not seek the passage of new law on this subject. Within the Treasury, we are working to improve our oversight on environmental issues in the MDB's. During 1987, we abstained on six loans, citing concerns about adverse environmental effects.

These loans included agricultural rehabilitation in the Sudan, electric power in Peru, a paper mill in Nepal, an abattoir in Botswana, livestock development in Benin, and agroforestry and livestock development in Mali.

In February of this year, we abstained on a loan to Burkino Faso for a road and water project because of serious environmental issues.

We are continuing close coordination with State and AID and with environmental groups in an effort to improve the early warning system for problematic projects. We have had particularly strong support from a number of non-governmental organizations—the Sierra Club, Natural Resources Defense Council, Environmental Defense Fund, and others—in gathering information, developing approaches to increase the effectiveness of our efforts.

These organizations have assisted in the preparation of our positions on loans for cattle production in open range savannas of sub-

Saharan Africa and on standards for evaluating projects that may adversely affect tropical moist rain forests.

They have participated in the early warning system established by AID to identify projects that may adversely affect the environment. They have worked closely with us in analyzing problems associated with specific loan proposals or with projects that are being implemented.

Let me turn now to the question of where we stand with regard to provisions of Public Law 99-591, the 1987 concurrent resolution, which were listed at the beginning of my text. During 1987, the World Bank carried out a major reorganization of its management and staff.

One of its primary aims was to strengthen the bank's capacity for addressing environmental issues. A central environmental department was established in the policy planning and research department of the bank. 23-three staff positions have been authorized for the three divisions in that department.

In addition, environmental units have been created in the technical departments of the bank's four regional offices. Twenty-two positions have been authorized for those units. The bank has appointed a new director for the environmental department and a new advisor for scientific and environmental affairs. Both of these individuals appear to be well qualified and capable, with extensive backgrounds in environmental matters.

In addition to these 45 permanent staff positions, the World Bank has indicated that it expects to use the equivalent of 18 man-years in consultant services for environmental issues during its current fiscal year.

The regional development banks—that is the Asian Development Bank, African, and Inter-American—need to hire more environmental specialists and to assign more staff to environmental issues. We have been encouraging them to do that.

The IDB has recently hired two senior environmentalists for positions at bank headquarters, and a third expert has been assigned to the bank's field office in Brazil. The ADB has had five staff members working on environmental issues. The African Bank as well has been working to beef up its environmental staffing.

Significant progress has been made on training. In the World Bank, an environmental training program has been introduced for bank staff. The program is designed to raise awareness on environmental issues in development, to convey new techniques, and to introduce the latest developments in the field.

The integration of environmental and economic work and the importance of policy intervention is to be included in the curriculum of the Economic Development Institute, part of the World Bank that works on these matters.

The IDB has initiated a series of seminars on environmental issues, as has the African Bank. Three of the banks have established line units to provide for a systematic and thorough review of projects affecting the environment and natural resources.

As I indicated earlier, the World Bank has set up four regional units. The Asian Development Bank and the African Development Bank have established smaller units that need to be strengthened.

The IDB decided to create an inter-departmental committee instead of a line unit. It reviews projects in both the preparation and implementation phases, and is advised by a senior environmental specialist.

The management of the banks report that they have taken steps to emphasize the involvement of health and environmental ministries. That was a requirement of the legislation.

The Asian Development Bank provides special briefing materials to its country programming teams. The environmental unit at the bank is also in contact with environmental agencies in borrowing countries.

The African Bank has issued instructions to staff for expanding consultations with health and environmental ministers.

Participation of non-governmental organizations, or NGO's, is also being encouraged in all of the banks. In the World Bank, the focal point for relations with NGO's has been shifted from public affairs to policy, planning, and research.

This shift has facilitated the exchange of views and discussions on substantive issues. In May of 1987, the IDB sponsored a conference on environmental issues in Latin America and the Caribbean. There was extensive participation by regional and non-regional NGO's. There was also very broad representation from public agencies throughout the region.

The African Development Bank is making plans to hold a similar conference during the second half of this year. The ADB has completed a working paper on cooperation with NGO's. The paper was based on consultation with a number of those organizations, and a final report is expected shortly.

All of these banks have sought to incorporate new technologies, including remote sensing techniques, in their efforts to encourage more effective land use planning. The World Bank has begun preparation of a comprehensive environmental action plan in a number of selected countries. It is also preparing terms of reference for consultants to identify areas where multidisciplinary support can help improve project preparation.

The MDB's are providing funds for national and international agricultural research programs and for science and technology programs to support research into ecosystem management.

The World Bank is working with Harvard University and the Institute for International Environment and Development to assess alternative approaches to natural resource management.

Task forces have also been organized within the World Bank to address desertification, deforestation, industrial accident risk avoidance, protection of the critical ecosystems, and mitigation of natural disasters in urban areas.

As I indicated earlier, we have begun a number of initiatives as a result of the continuing resolution that was passed last December. We recently submitted to Congress a report that had been requested on debt for nature swaps. In brief, this report recommends that the World Bank place additional emphasis on working with countries to establish priorities for conservation projects and on improving informational systems on species groups, critical ecosystems, and major tropical wilderness areas.

It also looks to the bank to take a more active intermediary role in helping to arrange debt for nature swaps and to consider starting a pilot program in a country that has indicated that it is willing to establish one.

An IRS ruling that encourages participation in such swaps was released last December.

To sum up, Mr. Chairman, we have had a very extensive legislative mandate from Congress on environmental issues in the MDB's. We have been fully engaged in implementing the provisions of that mandate.

On some of the issues, particularly staffing, training, and the involvement of NGO's, I believe we have been making substantial headway. In other areas, we will continue to press for further reforms.

I do not believe that we need additional legislation to assist us in seeking these reforms. I am optimistic that attitudes are changing, both in the banks and in the borrowing countries, and that we will have continuing progress to report to the Congress as the year progresses.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Malpass may be found in the appendix.]

Senator **Sanford**. Thank you very much.

Let me ask you first, how would you describe your job and its scope and its responsibilities within the Treasury Department?

Mr. **Malpass**. I beg your pardon?

Senator **Sanford**. How would you describe your job, the scope of it, and the extent of your responsibilities?

Mr. **Malpass**. I have four offices which report to me, the offices of multilateral development banks, debt strategy, development policies, and fourth, our bilateral economic relations with developing countries.

Senator **Sanford**. Well, you certainly indicated that you thought no legislation was needed in terms of dealing with the banks.

Mr. **Malpass**. Because we have had a substantial mandate over the last 3 years.

Senator **Sanford**. Well, I am interested in future congressional initiatives that are necessary. Is there anything in this broad field from your perspective that the Congress ought to do?

Mr. **Malpass**. Certainly, sir. One of our major initiatives this year is the general capital increase for the World Bank.

We believe that the World Bank is rapidly becoming a positive force in the environment, as well as in economic development, in the developing countries. And we look to an increased role for the World Bank in those areas.

Senator **Sanford**. Do you in this proposal, which is of course now before us, link the GCI to language which would put additional responsibilities for the environment on the bank?

Mr. **Malpass**. We are happy to work with this committee and others in Congress on legislation. It is our belief that there is a broad body of legislation already on the books, and that the task at hand for us within the Treasury Department and in the MDB's themselves is to implement that legislation.

To an extent, if more legislation is put on the books, it can actually detract from the effort to go forward with the existing mandate. So we look forward to working with you and your staff on these issues.

Senator SANFORD. But specifically, do you want to link the general capital increase to environmental language?

Mr. MALPASS. The World Bank included in its report a very active statement on its role in the environment. It included additional emphasis on the need for better management of human and natural resources, integration of environmental work into country development strategies, policies, and programs, evaluation of environmental costs of projects and the mitigation or elimination of adverse effects.

During our negotiations with the World Bank on the general capital increase, we raised these issues and found a largely receptive response from other donor countries, as well as from borrowing countries within the World Bank. And then it was included in the World Bank's report on the general capital increase.

Senator SANFORD. Thank you very much.

Senator Lugar.

Senator LUGAR. Mr. Malpass, what sort of reaction do you get from other countries who are the recipients of these loans when you include environmental constraints? Are they cooperative and enthusiastic about that, or do they see this to be some invasion of their sovereignty and of their ability to manage their affairs?

Mr. MALPASS. Well, there is a bit of both. We have been encouraged by the growing awareness within the developing countries of the importance of these issues, not only as a response to the United States, but because they will have a positive impact for the countries themselves.

It is only through long term sustainable development that they are going to have healthy environments and make progress on the economic front.

With other donor countries in the MDB's, we have also seen positive developments in recent years, with the United States finding shared goals, largely shared goals, with the Nordic countries, with many of the European countries, and with a growing number of the donor countries within these banks.

Senator LUGAR. In other words, is it the multinational character of the approach that is important and the perception of United States leadership in environmental matters that gives us greater support, as you say, from the Nordic countries and from others who share that ethic?

Can you describe the dynamics of how this is working out in terms of our general relations with other countries?

Mr. MALPASS. I think that is a very good point. One of the advantages of multilateral development assistance and environmental assistance, if we could call it that, is that countries—the recipient countries—can be more receptive, because it is not one country pushing its own agenda.

The multilateral development banks are very effective in achieving U.S. interests abroad, and to the extent that we can get the banks on the same agenda and one which we can support, they can then be effective in implementing that agenda within the developing countries.

I believe that our bilateral program has been effective in these areas as well. And so we have found that the MDB's are working together, for example, with AID in various parts of the world. The concept of multilateral aid joined with U.S. bilateral aid on a consistent policy basis has been an effective mix.

Now, obviously there is a lot of work yet to be done, and we hope for further understanding within the developing countries of the importance of these issues.

Senator LUGAR. Thank you very much.

Thank you, Mr. Chairman.

Senator SANFORD. We are delighted to have Senator Christopher Dodd, who has also been one of the Members of the Senate who has always had a concern for the protection of the environment and is also on the committee responsible for the western hemisphere and our concerns there. On April 27, we will have a hearing on this kind of development for Central America as we look for a long range plan.

I am especially pleased that you could come. Senator Dodd.

Senator DODD. You are nice to let me be here. I thank you very much.

I was interested and look forward to that hearing as well. And in following up on Senator Lugar's question, just two specifics if I could, Brazil and Mexico.

In Mexico, the problem of pollution in Mexico City is one that most directly affects, obviously, the population of that community. And I am sure there are spillover effects as well.

But in Brazil, the effects of the rain forest and the Amazon go far beyond Brazil.

And I wonder if either or both of you could comment on how much success you are having with the Brazilian situation particularly, because there are already implications that the denuding of the Amazon is having an adverse effect on agricultural production in other parts of the world. And so there the issue goes far beyond the borders of that country.

How successful have we been, either through the multilateral lending institutions or the bilateral aid programs, to encourage the Brazilians—and I am not suggesting that they are not sensitive to the issue; I know they are.

But the implications are apparently occurring far more rapidly than anyone anticipated. I wonder if you could comment on that?

Mr. MALPASS. Yes, Senator Dodd.

Senator DODD. Thank you, Mr. Chairman, by the way.

Mr. MALPASS. The situation certainly does extend beyond Brazil. The effects of developments within Brazil are going to be felt in other parts of the world. And so it is important to the United States not just because we care about tropical rain forests in Brazil, but because a broader environment is affected.

We have been pleased and encouraged by the cooperation and the joint efforts that we have made with environmental groups to develop standards and guidelines for reviewing tropical rain forest projects.

We are now in the process of setting up guidelines on the same basis for projects affecting wetlands. It has been of real assistance to us, to be able to talk to and work with people who have expertise in these areas, both in the U.S. non-governmental organizations and in other parts of the U.S. Government.

As far as specific projects in Brazil are concerned, there has been a major issue with the Rio Branco road project, where the Inter-American Development Bank in December 1987, suspended disbursements. That is a project where the World Bank had been financing a part of a road project and had taken into account many environmental concerns in that part of the road project.

The Inter-American Development Bank then developed a project to extend the road further into tropical rain forest areas, and that gave rise to two potential environmental problems: one, the problem of simply too many people in the region taking down the forest, developing it too rapidly; and then the actual forcing out of indigenous people within that region.

And so in cooperation with some Members of Congress, the Inter-American Development Bank decided to stop disbursements on the project in December.

It is my understanding that, while they have had some contact with the Brazilian Government since then, the Brazilians are still considering ways to approach this situation. They have not been forthcoming as yet in modifying the project to meet the environmental concerns.

Senator DODD. Mexico is the other one, but I do not want to take up time. Are they doing anything?

There was talk that they are going to have to move people out of Mexico City pretty quickly, that it is that profound.

Mr. MALPASS. I have been to Mexico City many times over the years, and I have found pollution to be a real problem. I am not familiar with any multilateral development bank involvement in that particular project, but let me check.

[Pause.]

Mr. MALPASS. We will have to provide a comment for the record, sir. For the record: neither the World Bank or the IDB has made a loan to Mexico for pollution control in Mexico City.

Senator DODD. Mr. Chairman, I thank you.

Senator SANFORD. Thank you very much.

I think we are about to have a vote. I think when I mentioned the presence of a member of the Commission, the World Commission on Environment and Development, as being here, he was not here at the time. But Ambassador Sahnoun is here now, I understand.

VOICE. He just had to leave.

Senator SANFORD. Let him know that we appreciated his coming, and his interest and support.

The next panel should be in place when we come back in about 5 minutes. Let me thank both of you for coming. If there is anything that you would like to add to the record, please feel free to do so, and we will hold the record open for any comments that other members of the Committee might like to add.

Thank you very much. We will stand for about a 5 minute recess. At the end of that time, I would ask Mr. Speth and Mr. Brown to be ready to testify.

[Recess.]

Senator SANFORD. I think if it is convenient, all four witnesses, Mr. Corbett, Mr. Lesh, Mr. Speth, and Mr. Brown come on up now.

I thank you all for coming and preparing very excellent testimony and taking your time to be here. As I said in the beginning, I greatly appreciate your interest and concern. One of our problems in dealing with environmental matters is that it is so difficult to get people concerned and interested in it.

And I certainly thank you. I think I will start with Mr. Gus Speth, the President of the World Resources Institute. Again, I might suggest that you summarize your testimony, then we will have a chance to discuss it, and then we will put it in the full record. We will probably get through on time.

I have to preside over the Senate at 12:30 p.m., so we have until 12:25 p.m. Thank you.

STATEMENT OF GUS SPETH, PRESIDENT, WORLD RESOURCES INSTITUTE

Mr. SPETH. Senator Sanford, it is a great pleasure to be here, and I commend you for these hearings.

I will not only, with your permission, submit my full statement for the record, but I will try to even summarize the short statement that I was prepared to give.

Senator SANFORD. Well, I do not want you to feel that we are cutting it short, because it is important that we get your feelings. I hope I have not given the impression that we are trying to rush through it. We have well over an hour now.

Mr. SPETH. Thank you very much.

Mr. Chairman, as we look at the world today, and particularly at the third world today, I think we see two challenges that can galvanize the best energies of the American people: The challenge of world poverty and the linked problems of widespread disease and hunger; and secondly, the challenge of global environmental degradation.

If I could inject one additional element into the very good things that I heard from the administration witnesses a few moments ago, it would be a sense of urgency about these two linked problems of world poverty and environmental decay.

They are very serious. They are getting worse, and each is connected to the other in ways that we only dimly perceive right now.

If you look in the developing countries today, almost every environmental problem that one can identify is at its worst in the developing world: Widespread deforestation and the loss of species, the erosion of croplands, the destruction of rangelands, the spread of deserts. The list is long.

This environmental decay is undermining development prospects on an unprecedented scale, and the possibility of the rural poor and the urban poor to lift themselves out of the situation in which they find themselves is being diminished each year by this erosion of the resource base.

I think it is fair to say that we face a crisis of environmental decay and a crisis of human suffering. The two are linked. They cannot be solved separately and they must be addressed together.

This is the message of the World Commission's report, Our Common Future. It persuasively documents the rapid deterioration of the world's forests and farms, its seas and cities, and sets forth strategies to assure a common future. And the key to that future is sustainable development.

Sustainable development is development that is sustainable environmentally, institutionally, and economically. The World Commission defines sustainable development as the integration of environmental policies and development strategies in order to meet the needs and aspirations of the present, without compromising the ability to meet those of the future.

The term "sustainable development," Mr. Chairman, has become a bit of jargon in the city of Washington already, and people use it in different ways. But it is extremely important conceptually and on the ground, in the field, and it is extremely important politically because it is a rallying point around which many people can join forces and join hands to come to the assistance of developing countries and indirectly and in the long run to the assistance of ourselves.

We have a great opportunity before us, a decade ahead in which Congress has the opportunity to enact new legislation on debt issues, on international trade issues, and a new foreign assistance act.

All of these must be driven, I would urge you, by the concept of sustainable development. There is some very good language in the House-passed version of the foreign assistance bill, H.R. 3100, that needs to be put into the Senate version, for starters.

But that is not enough, Mr. Chairman. Tinkering with the outmoded policies and institutions will not be sufficient to tackle poverty and environmental degradation in the 1990's and beyond.

We need a new vision of world partnership to take care of our common future, a new concept of burden-sharing to sustain our earth and its people and the environment. It is agreed that it is time once again to overhaul the foreign assistance act, and I propose that we start by renaming it the sustainable development act.

Regarding the major themes of this overhaul, I would urge that you give highest priority in the United States policy in the Act to improve the resource management for the rural poor in developing countries.

We would propose that the United States help mount a second agricultural and forestry revolution to transform traditional farm systems that would make a commitment to low impact or resource poor farming comparable to that made over the last generation to the resource intensive green revolution.

In the next two decades, major assistance could go to the men and women who practice subsistence farming on marginal lands to provide credit and technical assistance and incentives to the poorest of the poor and to restore productivity to eroded and degraded lands.

This means farming that combines the growing of food crops and trees. It means that U.S. AID must multiply reforestation efforts to help close the gap between forest loss and forest replacement.

The second theme would be a comprehensive energy program in the U.S. assistance effort. There is no aspect of economic development that does not require energy, and few forms of energy that do not have severe environmental effects.

Yet, up until now AID's energy program has been inadequate to meet the need. To take pressure off the poor, most of whom depend on fuel wood for fire and energy, and to take pressure off the remaining forests and range resources, we would urge a major initiative to provide greatly increased efficiency in household, agricultural, and industrial energy use.

And third, because most of the coming third world population growth is going to be in cities that share the same public health and pollution problems as urban centers elsewhere, we would propose a substantial focus on the problems of sanitation and pollution control, where American technology has much to offer.

These strategies that can help us achieve sustainable development are people intensive strategies, rather than capital intensive strategies. They require information, technical assistance, and training.

While third world governments must develop the policies, incentives, and infrastructures, much of the work must be done by local communities, by non-governmental organizations, and by private enterprise.

In the 1970's, critics often called environmentalism a luxury of the rich, and most poor countries thought that they would have to choose between development and environmental protection, between jobs and environment, and at that time there was not a choice at all.

Indeed, if that were the tradeoff there would not be a choice today at all. Uniformly, developing countries would opt for development.

But we understand now that that is not the tradeoff. In 15 short years, environmental protection has gone from being the luxury of the rich to being a requirement of the poor. Leaders of even the poorest countries, countries with the most fragile lands and the most degraded resources, increasingly understand that future development depends on the sustainability of the resource base.

Mr. Chairman, I would urge that the committee adopt as the twin pillars on which to revitalize a national concern with foreign assistance, on which to revitalize American concern with the third world, an effort aimed at addressing the problem of world poverty and at addressing the problem of environmental deterioration in the poor countries.

I would urge you to look hard at the political possibilities of bringing together two great constituencies in this country, of humanitarian concerns with poor people, with disease, with starvation, a lack of human opportunity, and an even broader concern for environmental protection, for future generations.

And those two great constituencies, I would submit, could be brought together and used to revitalize foreign assistance in this country. And without them, if we merely focus on generalized development and do not return to the basics of helping poor people and saving the environment, I do not think we will ever develop the popular support that can lift foreign aid from being a pejorative term and a diminishing program into the kind of full scale effort that is going to be needed if we are going to address these problems on the scale that they must be addressed.

Thank you.

[The prepared statement of Mr. Speth may be found in the appendix.

Senator SANFORD. Thank you very much.

Just to have a complete record, tell me a little something about the World Resources Institute.

Mr. SPETH. Mr. Chairman, the World Resources Institute is a private, not for profit think tank in Washington, focusing on environmental issues, resource issues, development issues of international concern, with a staff of about 55 people, funded mostly by private foundations.

Senator SANFORD. Have you done much work on suggesting a structure for a revamped U.S. aid program?

Mr. SPETH. Senator Sanford, you will see in our longer statement that we have submitted for the record a set of detailed policy prescriptions which flesh out the ideas that we have presented.

Senator SANFORD. I just wondered if you had backup studies on that.

Mr. SPETH. We have done for 5 years now a series of studies on these policy recommendations that we are presenting to you, and we would be happy to make any of those publications available.

Senator SANFORD. Well, I think we have some of them, but we might want to summarize some more of them for the record. If so, we will get in touch with you.

Mr. Lester Brown, President of Worldwatch Institute. We would be pleased to hear from you.

STATEMENT OF LESTER BROWN, PRESIDENT, WORLDWATCH INSTITUTE

Mr. BROWN. Thank you, Mr. Chairman.

Like my predecessors on the panel, I would like to commend you for focusing attention on the issue of sustainable development and using the World Commission on Environment and Development report as a point of departure.

It's timely in the sense that we can now see that two continents will end this decade with lower living standards than those with which they began. In both Africa and Latin America, per capita income and per capita food production are lower now than they were at the beginning of the decade.

When we talk about sustainable development, we are using, as Gus implied, some economic jargon. We are talking about sustainable progress and whether or not progress can be sustained. That is the real issue, and we can now see that for two continents it is no longer being sustained and that living conditions are deteriorating.

This is what gives this issue the sense of urgency.

I do not know anyone who has worked closely with Africa who thinks that the trend of environmental deterioration and economic decline is going to be turned around in the foreseeable future.

I think we have a far more serious problem before us than most people realize, and I think in our use of some of the jargon we are missing the important human and long-term social and political dimensions of unsustainable development as it has become in these two continents.

"Sustainable development" is a fairly recent term. When the international development effort got under way back in the fifties and gained momentum in the sixties, it was assumed that development would be sustainable, so no one ever used that adjective. It is now becoming clear that we cannot take it for granted that development is sustainable.

I would like to talk about some of the reasons why this is the case. The early formulations of development strategies were very simple. They involved increasing the rate of investment or capital flows from abroad in order to invest in the future.

That simple economic formulation worked well in the fifties. It worked well in the sixties. But as we moved into the seventies and eighties, things began to change. The thing that was missing in that economic formulation was an understanding of the environmental support systems on which the economy rests.

What we have begun to see in country after country is that the demands placed on the environmental support systems are becoming excessive, and as a result those systems are deteriorating.

In my testimony—the longer version which I am transmitting for the record—I have drawn on material from our first five State of the World reports, which are subtitled "A Report on Progress Toward a Sustainable Society"

I would like to draw your attention to the section on carrying capacity, and, in particular, the figures in my prepared statement. This is a very simple example of a biological system that has been overwhelmed by excessive demand, namely the Peruvian anchovy fishery.

The economic reports on that fishery in the late sixties and the early seventies were glowing. Indeed, anchovy fish meal exports accounted for a third of Peru's foreign exchange earnings.

It was the world's largest fishery. No other came close. But the marine biologists who were reading the economic reports were pointing to the danger signs and saying that the yield could not be sustained. The result was that the fishery collapsed in the early seventies and, instead of yielding 8-12 million tons, has been yielding 1 or 2 million tons in recent years.

I cite this because it is a very carefully measured example of collapse. We could look at a number of other systems that are not so carefully measured, such as forests, which were mentioned before.

We are beginning to see a syndrome emerge. One sees it in most of the countries in Africa. It begins with rapid population growth putting excessive demand on local forests, the forests beginning to shrink, and then firewood becoming scarce.

When firewood becomes scarce, people begin to burn cow dung and crop residues for cooking. When that happens, the soil is deprived of organic matter and nutrients. The land begins to deteriorate, and then erosion accelerates. Rainfall runoff increases and the amount that is absorbed and percolates downward decreases. Water tables start to fall and wells go dry.

We have a series of events here that is almost a domino effect. It begins with dwindling tree cover and ends with situations, as in northern Ethiopia today, where there is not enough topsoil left to sustain even subsistence level agriculture.

If one looks at northern Ethiopia today, which has become a site of chronic famine, we have a window on the future of many other Third World countries if land degradation and soil erosion continue.

We have today been focusing on sustainable development in terms of Third World countries, but it is also a global issue, and the World Commission on Environment and Development report looks at it in global terms. One thing that would do a great deal to help us understand what is happening in the world would be to develop an ecological deflator.

In economics, we use price deflators to separate reported output and to convert it into real output. We need the same thing to convert reported output into real output that is sustainable.

Let me use U.S. agriculture as an example, again because we have good data. A substantial share of U.S. farm output at pesent is not sustainable. It is not sustainable because soil and land—highly erodible land—are being used in an unsustainable fashion, and because water is being used in an unsustainable fashion.

Let me just cite the numbers. This is from State of the World 1987. As you know, the Food Security Act of 1985 calls for taking 40 million acres of our most erodible land out of crops and putting it into either grass or trees. The reason for this is that the land will not sustain cultivation over the long term and, rather than lose all the topsoil, it is better to put it into a less intensive use which is sustainable.

I think the Congress deserves a lot of credit for passing that legislation. That 40 million acres has a grain productive capacity of 48 million tons a year.

In addition, we have water being used in an unsustainable fashion. A USDA study came out 2 years ago which pointed out that 14 million acres of irrigated crop land in this country is being irrigated by reducing the water table. The water table is falling from a half a foot to 4 feet a year on 27 percent of U.S. irrigated crop land.

Part of this is the depletion of the Ogalalla aquifer and part of it is the use of groundwater faster than the natural rate of recharge in other parts of the United States.

This unsustainable use of water is now producing the equivalent of 9 million tons of grain per year. I cite this because the unsustainable use of land and water in the United States accounts for well over 50 million tons of grain, which is about one-sixth of the annual U.S. grain output.

It also happens to greatly exceed the buildup in world grain stocks over the last several years. The headlines we read about a world awash in grain surpluses are not reflecting reality. They are reflecting the extra output which comes from consuming the resource base itself.

I used U.S. agriculture as an example. If we had the data, we could make a similar calculation for the world. We do not have them yet, but we ought to be gathering the data in order to understand what is happening.

As we begin work on State of the World 1989, we are thinking about indicators of sustainable development: Energy, population, food, water, soil, etc. I would draw your attention to two important indicators of energy sustainability.

One is the efficiency with which we use energy. If you turn to my prepared statement, you will see a table that compares the efficiency of energy use in various countries.

If we look at Italy and Japan, for example, we see two countries that are very efficient in their use of energy. They produce a dollar's worth of goods and services with about half the energy that we use in the United States. Over the long term, the more energy-efficient economies are going to be the more sustainable economies. They are also going to be the more competitive economies in world markets, and I think that is something we need to bear in mind.

Another key to long term sustainability is shifting from fossil fuels, which are depletable, to renewable energy resources. If you look at the table in my prepared statement, you will see a number of countries and the share of their total energy that comes from renewable resources.

The two countries at the top, Brazil and Norway, have made the transition from fossil fuels to the age of renewable energy. They are getting more than half of all their total energy from renewable sources.

This is the direction in which the world must move over the longer term.

The bottom line of my comments is that we are now in a situation, in the changing relationship between ourselves—now more than five billion—and the natural systems and resources on which we depend, in which we have to rethink development strategy, moving away from the economic formulation and starting with an environmental formulation.

If we can devise national development strategies that are more environmentally sustainable, then we can look within them for the economically profitable investment areas. As it is now, we start with an economically formulated strategy that bears little relationship to environmental sustainability.

This economic strategy is not working in many parts of the world. We have to begin to rethink things, starting with environmental conditions and moving to the economic, rather than starting with an economic strategy and then asking whether it is sustainable.

I think we are going the wrong way.

We have talked about the urgency of focusing on these issues, particularly on the things that are becoming unsustainable. We need now also to think about the scale of the effort that is going to be taken.

Someone said earlier that we are not talking about some tinkering with the system—we are talking about a fundamental reordering of priorities.

One of the things that we have attempted to do at the institute is to ask the basic question, "What if we wanted to get the world back onto a sustainable development path, where living conditions could be rising everywhere, instead of declining on two continents (as is now the case)?"

It turns out that we have to look at a number of key things: Reforestation, soil conservation, family planning, energy efficiency, development of renewable energy resources, and Third World debt reduction to the point where economic progress can be restored.

When we begin costing these out for a ten year effort during the 1990's, we see that the total is roughly $150 billion a year beyond what is now being done in these areas. This is a rough estimate of the price tag for getting onto a sustainable development path.

Now, that is a lot of money. It is particularly a lot of money when we look at current levels of international aid appropriations. It is not so much when we look at it in terms of global priorities and compare it with global military expenditures, for example.

Given our overwhelmingly military definition of security, we— the world— are now spending about $900 billion a year. We have leveled off there in the last few years. What we have asked ourselves at the Institute is, "If we decided we wanted to have a world where progress was sustainable, where the human condition could improve, where would we get the resources for that budget?"

I think the answer has to be in broadening the definition of security and in recognizing that these new threats, whether they be soil erosion or ozone depletion or any of the many other forms of environmental deterioration that we have been discussing, have to be addressed.

Now, interestingly, we do have an example of a country that has done the sort of shift that we are talking about outlining for the world. A decade ago, China was spending some 13 percent of its GNP for military purposes. That is now down to about 7 percent.

What China has done is shift resources from the military sector into reforestation, family planning, soil conservation, agricultural development, etc. It has done that at the same time it has instituted economic reforms.

The result is that per capita food production in China has gone up by half over the last decade. Incomes have doubled over the last decade. That is not to say that China does not have any environmental problems. It still does, and it has some fairly serious ones.

Nonetheless, they have made a major shift in priorities and commitment to sustainable progress, and they have reordered priorities. They have literally walked away from the arms race, despite their 1,900-mile border with the Soviet union.

What we are recommending for the world over the next decade is simply that the other four-fifths of the world do what the one-fifth in China has done over the past decade. We think the time has come, the scale of the problem is such, the urgency is such that we are going to have to rethink things in a very fundamental sense.

And this is where I think these hearings help get our thinking on track and get us to focus attention on the need to reorder priorities.

Again, Mr. Chairman, thank you very much for organizing these hearings.

[The prepared statement of Mr. Brown appears in the appendix.]

Senator Sanford. Well, thank you very much.

I wonder, for the record, if you would give us some brief statement about Worldwatch Institute.

Mr. Brown. The institute is a Washington-based nonprofit research organization that focuses on global issues, including energy, environment, food, population, and development. We are concerned about global issues and the future not only of developing countries—which is looking so bleak at the moment.

We are supported by foundations, and about half of our support comes from private foundations and about half from publication sales.

Senator Sanford. The global community certainly is going to have to respond together in order to put the nations on the proper track to sustainable development.

The World Commission has made a number of suggestions and all of you have or will comment to some extent on those. Do we have the global institutions in place to act on these suggestions, or do we need new mechanisms?

Mr. Brown. One of the keys to reordering priorities is obviously a reduction in East-West tensions. What we are now seeing within the United Nations are some almost unprecedented activities.

We are seeing the United States and the Soviet union work together to fashion a detailed peace plan for the Gulf war, for example. We can at least see the possibility that the Security Council and the U.N. peacekeeping forces could begin to play the role that the founders of the U.N. originally had in mind.

If that is done, then the chances of reordering priorities are quite good. There are some issues, however, that we are going to have to face at the international level, where we may not have the institutional capacity at the moment.

One of those issues is climate change. If we are going to deal with climate change and if we decide we want to head off the global warming, it is going to take a major effort.

No single country acting alone can head off climate change. It will take an international effort both to move away from fossil fuels toward renewable energy sources and also to reverse the deforestation of the earth, which is contributing to the CO_2<K> buildup.

Whether or not the current set of institutions are capable of dealing with climate change remains to be seen. The existing institutions were able to take an important first step toward dealing with ozone depletion through the Montreal Accord.

That has been one of the most encouraging international collaborative efforts on the environment that we have seen in a long, long time.

Senator Sanford. Well, thank you very much. We might come back if we have enough time. If not, I invite you to add anything you care to.

Now, if I may I would like to call Mr. Hal Corbett, Vice President of Monsanto.

STATEMENT OF HAL CORBETT, VICE PRESIDENT, MONSANTO CORP.

Mr. CORBETT. Mr. Chairman, thank you.

I am senior vice president for environmental safety and health of Monsanto Company, and I also thank you for the opportunity to testify today on environmentally sustainable development.

I applaud your efforts to develop foreign assistance programs in this area that are broad-based and which move away from dependence on short term nationalistic approaches.

My remarks will be brief this morning and somewhat repetitive. The repetition will be deliberate because I believe that certain elements need re-emphasis. Earlier today you heard many examples of constructive, commendable action which will favorably impact our overall worldwide environment.

I could find hundreds of others. I will mention only a couple. unfortunately, I do not believe that the current range of initiatives is enough. It is not half enough, even a tenth of that which is required to reverse the worldwide environmental trend.

Short term perspectives are not sufficient to meet the challenges that we face. The trend toward global warming, destruction of forests, especially the tropical rain forests, the continuing increase in desertification, overpopulation of low resource countries, not to mention ozone depletion in the upper atmosphere, these are all examples of pressing problems that demand different and more aggressive action than we are taking at present.

Taken separately, these problems are desperately serious. Considered collectively, they are symptoms of a true worldwide environmental crisis.

I would add one more symptom of this environmental crisis, and that is the institutionalized poverty in many parts of the world, poverty that is not only worsening these environmental problems, but in many cases, in most cases, is a primary cause of them.

Because the underlying problem is an economic one, that is too few resources in developing countries, the principal solution must be sustained economic development. This was of course the essential finding of the World Commission on Environment and Development.

It is also contrary to what some people in the United States still believe, where many see economic development as a principal cause of environmental problems. Throughout most of the rest of the world, however, as has been mentioned, economics is increasingly seen as vital to solving our environmental problems.

The key is sustainable development and not the short-range consumption of natural resources which threatens—which creates long term poverty.

It is also important to note that the U.S. approach to environmental protection is not a suitable model for developing countries. Only a very wealthy country can afford the poorly focused and extremely expensive approach to environmental regulations which prevails in the United States.

Instead, we must look to other models if sustainable economic development is to become a reality for developing countries for the rest of the world. It might be worth noting that sustainable development will occur eventually, no matter what we do.

We cannot achieve a negative number of tropical forests. Our problem is to achieve sustainable development with a satisfactory quality of life, rather than a greatly impoverished one.

You asked me to comment on what actions Monsanto and other companies are taking to encourage responsible environmental actions on a worldwide basis. I will give you a few brief examples.

First, we ensure that we have one set of acceptable environmental standards, safety standards, and guidelines for our manufacturing operations in all countries throughout the world, regardless of local conditions. We have implemented these guidelines.

We monitor compliance, and we encourage long term environmental protection to the same degree at all Monsanto locations, regardless of local customs. The companies with which I am familiar do approximately the same.

Monsanto is an active participant in the WICEM conference in 1984, from which sprang the international environmental bureau, an organization affiliated with the International Chamber of Commerce, which has as its goal the transfer of industry environmental technology and expertise to needy countries.

The IEB is helping to focus attention on sustainable economic development. For example, IEB members met to discuss the WCED report and determine how best industry can contribute to addressing the issues involved.

As another example of successful industry initiative, a small group of U.S. food production, processing, and marketing companies have formed an organization called Food Industry Crusade Against Hunger, whereby they are providing grants to projects in developing nations that help increase the ability of people to feed themselves.

By design and by necessity to attract the grant, these projects are sustainable. They are easily adaptable to a number of different countries, and implemented through existing organizations.

They range from increasing women's vegetable production in The Gambia to helping establish a thriving network of fish farms in Burundi. Increasing food production without environmental degradation must be a major part of any comprehensive attack on worldwide environmental problems.

These examples of private sector initiatives have important elements in common. They are developing new tools and programs outside of traditional approaches. They are sustainable and can be replicated. They avoid the problems of providing assistance through cumbersome bureaucracies, and they are aimed at projects where success can be measured in terms of actual impact upon people.

To summarize my recommendations for the subcommittee to consider in developing additional assistance programs, first of all, models other than those used in the developed industrial nations must be used. They are simply too expensive for the rest of the world.

Assistance should be targeted toward programs which avoid the creation of new bureaucracies or those that might require an infrastructure which does not exist. Industry should be encouraged to expand its efforts in promoting sustainable development.

For examples, suggestions and efforts to encourage such entities as the World Bank and the International Monetary Fund to connect funding to sustainable development could play an important role. In this connection, for your information, the International Environmental Bureau and the World Bank are sponsoring a conference in June to encourage greater environmental awareness and explore new approaches for industry and World Bank cooperation on environmental matters.

Last, we recommend that U.S. foreign assistance focus upon projects which incorporate both sustainable development and eventual independence of aid, almost a definition of sustainable development. Unless both elements are considered, the prospect for long term improvement is not bright.

I would be happy to answer any questions you may have.

Senator SANFORD. Well, thank you very much.

A group of industry executives met at the Aspen Institute following the issuance of the World Commission report, a meeting that was arranged by the International Environmental Bureau. A response to the recommendations of the World Commission report was issued by those industrialists who attended. Are you familiar with that?

Mr. CORBETT. I am very familiar with it. We participated in that program.

Senator SANFORD. I thought so.

What has been the industry's response to that?

Mr. CORBETT. The industry response to the WCED report has been generally favorable. There are aspects of the report which any single member would have disagreed with, but on balance we feel that the report is a major step forward in research and in understanding, and in particular the linkage of environmental problems to poverty and the linkage to economic development as a solution to today's problems.

Those two elements are very strongly supported by industry, as one might expect.

Senator SANFORD. What role does the U.S. Council for International Business play in promoting international regulations relating to the environment?

Mr. CORBETT. I think the council plays a very important role, as do all of the other institutions. In my view, the worldwide problem is one of understanding. It is not so much one of information. It is one of understanding exactly what is happening and how bad it is and, as Mr. Speth mentioned, what kind of a sense of urgency is required to move forward.

And I give most of the institutions pretty high marks in terms of bringing the matters to the attention of their constituency plural and playing a progressive role in trying to get things changed in a constructive manner.

Senator SANFORD. Thank you.

I am going to, at this time, put into the record a submission for these hearings by the U.S. Council for International Business. It will follow your testimony.

[The material referred to appears in the appendix.]

Senator **Sanford**. Thank you very much.

Now, Mr. Don Lesh, Executive Director of Global Tomorrow Coalition, we would be pleased to hear from you.

STATEMENT OF DON LESH, EXECUTIVE DIRECTOR, GLOBAL TOMORROW COALITION

Mr. **Lesh**. Mr. Chairman, thank you very much. I am delighted to be here today and I join all of my colleagues and the witnesses in commending you and the committee for holding this hearing.

I represent the Global Tomorrow Coalition, which is somewhat different from the other organizations represented here in being a broad-based alliance linking together some 110 organizations. If you aggregate all of their members, there are perhaps 8 million people represented in the Coalition.

Our purpose is to broaden public understanding of long range global trends in population, resources, environment, and sustainable development, with a special interest in looking at the U.S. role and responsibility to see to what extent we are part of the problem or part of the solution.

I have submitted some written comments, but I will accept your invitation simply to comment today quickly, and then we can perhaps have some questions.

We are delighted that this report, "Our Common Future," from the World Commission on the Environment and Development is receiving this attention in the Congress, because I refer to it in my comments as perhaps the best kept secret in the United States today.

Even though we have seen a number of evidences from various sources of positive actions being taken—and I certainly do not mean to denigrate anything that Mr. Corbett or anyone else has said—I think that may be a fair statement.

I think, however, that the report deserves much more attention, much more urgent attention, and much more widespread public understanding. We have been trying to help in a very small way through our programs, for example by holding conferences with such interesting titles as "Understanding Sustainability: Working Together for the Economy and the Environment," in places like Oshkosh, WI, and Los Angeles, CA.

We can report to the subcommittee that one of our happy findings, to our surprise in Los Angeles last Saturday, was that one of the current mayoral candidates in San Diego is running on a platform based on the recommendations of the Brundtland Commission report; and that a grassroots organization has been founded in San Diego called the Common Future Information Team to circulate the WCED information more widely.

These are samples of what is happening. I have a feeling, however, that this interest is very narrow and that, even though it is encouraging, it may be far ahead of what exists in the executive branch of the Government.

What is the basis for asserting that this report may be of value to us? I think there are several reasons that we might point to. The first is, Mr. Chairman, that I consider this report the single most significant international consensus statement on issues of population, resources, environment, and development since the 1972 Stockholm Conference on the Human Environment.

This is an artifact, a document which is of use to all of us, for that reason. It was not the product of an academic research organization. It was not the product of some fringe group.

It was compiled by people who are like yourselves on this committee, men and women of action, of affairs, who have held high public office in their countries, and are aware of what is going on in the world, aware of the problems in their own societies. The report is remarkable in that it is a unanimous statement by this group of 22 Commissioners representing East, West, North, South, affluent, poor countries around the world.

There are no footnotes in this report, Mr. Chairman. There are no dissenting statements by the various organizations or the various countries that were represented on this Commission. It is therefore a document to which we can all look for a great deal of authority and interest in conducting our work.

I should add that there is a special advantage in that this document is explicit in including the factor of population growth as a key matter in understanding long-term global trends. It also specifically covers areas such as energy, agriculture, national security, nuclear power, and so on.

In arriving at this joint statement, obviously, compromises had to be struck. And you will find, as we have found, that the expert on population matters may not be totally satisfied with that chapter, or the expert on energy may have something to criticize in that chapter, but—taken as a whole—the report is a remarkably useful and comprehensive document.

The second thing I would underline is that this is not the first time we have heard this message. I would suggest that, even though the book itself refers to earlier publications, such as the Brandt Commission report and the Olaf Palme Commission on Common Security, that there is a much longer heritage of the same message being conveyed to us from various sources.

One would be the first report to The Club of Rome in 1972, "The Limits to Growth"; the OECD Inter-Futures Report; the IUCN World Conservation Strategy; and most emphatically, our own Global 2000 Study, which was published in 1980.

I would specifically add the excellent work now being done, and which has been done for many years, by the Worldwatch Institute and the World Resources Institute, both of which are represented here today and which I am happy to say are members of the Global Tomorrow Coalition.

Mr. Chairman, these people are telling us something. I think it is time that we listened to what they are saying very carefully and begin to find ways to respond as societies, as economies, and as governments.

So far, in a capsule description, I would say that the powers of inertia in most of our societies are proving very strong indeed, and that the capacities of our institutions, the question which you raised, are very weak. We are not yet ready to cope with what is in my view the real, meaning of what it would take to achieve a fully sustainable economy in this society.

One of the answers which all of the members of the panel here today have referred to is sustainable development, a phrase frequently used, as Gus Speth noted, in the jargon of Washington today, but defined in various ways.

My only comment would be that we must be cautious not to understand sustainable development as meaning business as usual. In the fundamental sense, if we were to adopt in their fullest form all the implications of sustainability, we would be dealing with a rather radical concept which would call into question the structures of our corporations, the ways in which we govern ourselves, many of our social institutions, the ways in which we teach our children in schools, and so forth.

It is not, therefore, a simple matter. It is a matter which challenges us to think of ways in which our structures and institutions and actions respond to what is a perceived global threat.

In my written testimony, I was very pleased to note the positive reaction of the International Chamber of Commerce and the International Environmental Bureau, to which Mr. Corbett also referred. For example, the ICC said this report ". . . merits serious consideration by the business community and its environmental advisors. Most fundamentally, it is the first report of its kind which recognizes that economic growth can be the engine for ameliorating environmental problems in both industrialized and developing countries."

I believe that if a major corporate community representing many outstanding multinational corporations acknowledges the importance of this report, and is willing to engage in a discussion directly on the issues, that the executive branch of the Government can do no less.

I find encouraging many of the outstanding indicators cited by the representatives from AID and the Treasury this morning. But I submit that few of those are directly related to the report of the World Commission on Environment and Development.

There are many other impulses to which they respond. In fact, the actions of the U.S. Government stand in remarkable contrast to our very closest neighbor to the North, Canada.

I would only quickly note that in the course of the more than 3½ years of work by the World Commission on Environment and Development, the United States, I regret to say, did not supply any voluntary support for its work in the international community. Nor did we respond to the possibility of holding one of its public hearings in the United States.

By contrast, the Canadian Government was generous in its financial support, and welcomed the arrangement of a 10-day visit of the World Commission on Environment and Development which included a series of public meetings, site visits, consultations with environmental ministers, non-governmental organizations, and governmental leaders, starting in Vancouver in the west and running to Ottawa and the Atlantic provinces in the East.

This kind of commitment led to a structure of round table discussions across Canada involving business, labor, government, nongovernmental organizations, educators, and others 2 years before the appearance of "Our Common Future." In fact, by October 1986, there was a National Task Force on the Environment and the

Economy formed by the Canadian Council of Resource and Environment Ministers.

And by September of 1987, they had rendered their report, before the report of the World Commission on Environment and Development was to be submitted to the United Nations General Assembly.

Against this record of engagement—which of course is not perfect, and our Canadian friends are the first to admit that, but they are doing something—I would suggest that our national response pales into insignificance. Our elected officials in my view, with rare exceptions, are not recognizing that it is in our deep national self-interest to pursue this discussion and debate.

I would also comment, Mr. Chairman, that I believe on a personal basis that we are missing a very great opportunity in our relations with the Soviet Union at this point. It is clear that, with the accession of Mr. Gorbachev to a position of power in the Soviet Union, interesting things are happening.

I leave it to the experts on the Kremlin to tell us exactly what. But it is clear that things are changing. New opportunities are arising. We are making progress on arms control and disarmament, which I applaud.

But I also believe that the way is open at this point to seek closer Soviet-United States cooperation on long-term global issues that would be deeply in our respective national interests, and in the global interest as well.

I would also like to suggest that, as the committee looks carefully at the implications of the World Commission on Environment and Development report for foreign assistance programs—and that is absolutely a justified and worthy attempt—we avoid the fallacy of self-exclusion.

This report does not speak only of what is occurring in the less developed countries of the world, the poorer countries, and what we can do in terms of our assistance programs. This report speaks in the language of sustainable development directly to the United States today, how we are organizing our economy, our society, our Government, what we are doing in the world.

We should consider that the domestic patterns that we are setting, our policies, our institutions, may in fact be more influential on the progress of development in Third World countries around the world than anything we do bilaterally or through foreign multilateral assistance programs.

Furthermore, I would warn that the evidence is clear that, as the U.S. Government mobilizes itself to respond to the kinds of threats posed by global trends, we are very poorly equipped.

You asked earlier about our institutional base. I think that there is a very careful definition of the capacity within the executive branch of government to deal with long term global trends in resources, population, environment, provided in 1980 by the Global 2000 Study.

One of those conclusions, Mr. Chairman, was that the executive agencies of the U.S. Government are not now capable of presenting the President with internally consistent projections of world trends in population, resources, and environment for the next two decades.

To me as a U.S. citizen, proud of my government, fully believing in our capacity in science, technology, and analysis, I find that conclusion very disquieting. I find even more disquieting the fact that over the last 7 years we have arguably lost some capacity to deal with long-term global trends in our Government.

Finally, Mr. Chairman, let me say quickly that, although I speak for the Global Tomorrow Coalition with a very broad base, there is an even broader coalition of organizations with specific interest in the pending revision of the Foreign Assistance Act, S. 1274.

This is not a position taken by the Global Tomorrow Coalition as a whole, but I wish to call attention to it because the groups, which number nearly 150, and in fact include 15 key and energetic members of the Global Tomorrow Coalition, have gone on record in favor of this legislation and its quick passage by the Senate in a form similar to that passed by the House. As amended, this law would incorporate some of the basic concepts of sustainable development, such as increased reliance on small-scale self-help projects, using appropriate technology and agricultural methods suited to the local environment, a stronger focus on long-term, low-risk, affordable, resource-conserving approaches, greater emphasis on prior consultation with indigenous peoples, both women and men, and their involvement in planning and implementation of development projects.

The legislation would pick up the amendments from the African famine Recovery and Development bill introduced by Senator Simon, and would urge U.S. AID to allocate at least 30 percent of its Africa Development Fund budget to purposes such as environmental and natural resource protection, voluntary family planning, and primary health care services.

With that being said, Mr. Chairman, let me repeat that I appreciate the possibility of engaging in this dialog with you and I thank you very much.

[The prepared statement of Mr. Lesh appears in the appendix.]

Senator **Sanford**. Well, thank you very much.

I was going to ask you why you thought that the United States had not done very much, but by the time I got that noted down you had already answered that question.

I was going to ask you what you thought we might do to increase public interest, and you answered that question before I could get to you also.

I thank you very much for your testimony and your continuing interest.

I would like at this time to put into the record a statement by William D. Ruckelshaus, and a statement by Thomas Stoel, the NRDC international program director.

[The material referred to appears in the appendix.]

Senator **Sanford**. And I would like to read one portion of Mr. Ruckelshaus' statement, which correctly states the benefits to the United States—and in light of what you have said, we have to understand our own interest and self-interest, as well as responsibility, and the benefits that we will derive from environmentally sound development assistance programs. He said:

> The continued prosperity of the developed world is dependent on the accelerating prosperity of the developing nations in an environmentally sound manner. The de-

> veloped world is increasingly dependent on the developing countries for markets, and this dependency will increase.
>
> Even now, the developing nations represent a large market for United States goods and services, a larger market than all of the developed nations combined, with the exception of Canada.

And paraphrasing:

> Such markets will vanish if developing economies do not resume economic growth, and most cannot so resume if the present environmental warnings are ignored.

I thank all of you for participating in this hearing, and I would like to remind you that on April 27 a follow-up hearing will be held on environmentally sustainable development in Central America.

I thank you very much for coming. I know it has been a sacrifice of time and energy to prepare for this, and I trust that we can put it to good use. Thank you very much.

We stand adjourned.

I would like to say one thing. I want to especially thank Gerry Connolly of the Foreign Relations Staff, for his excellent work in preparing for this hearing, along with Tom Boney, who is the minority representative on the committee staff.

And I especially want to thank Susan Drake and John Blackburn of my staff. I think they have done an excellent job from the time we first got this book until now. So I especially want to express my appreciation.

You know, the Senate could not run near so well, if at all, without the good staff work that we can benefit from. So I thank them and would like to have that in the record.

[Whereupon, at 12:20 p.m., the subcommittee adjourned, to reconvene April 27, 1988, at 10:10 a.m.]

U.S. DEVELOPMENT ASSISTANCE AND ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

WEDNESDAY, APRIL 27, 1988

U.S. SENATE, SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY, TRADE, OCEANS AND ENVIRONMENT OF THE COMMITTEE ON FOREIGN RELATIONS,
Washington, DC.

The committee met at 10:10 a.m., in room SD-419, Dirksen Senate Office Building, Hon. Terry Sanford, presiding.

Present: Senator Sanford.

Senator SANFORD. The meeting will please come to order.

It is a pleasure to have all of you here, and I'm privileged to have the people who have come with thoughtful and prepared testimony.

This is the second hearing that we have held addressing the issue of environmentally sustainable development. Today, for the first time for us, we will be exploring the environmental problems associated with the development of Central America. This hearing is conducted in relation to our general study of sustainable development and specifically in relation to the Senate resolution which is a statement in support of comprehensive development for Central America.

This subcommittee learned from the last hearing that wise management of the natural resource base of a country is critical to insuring sustainable development and economic growth. Developing countries simply cannot afford to allow to deteriorate the very resources that are the lifeblood of their social and economic development, and it is time that we give some concern to this.

One of our greatest challenges in Central America is how to sustain economic growth without depleting the natural resources, the capital on which growth continues to depend. Rapid deforestation, soil erosion, sedimentation of lakes and harbors and pesticide contamination are causing environmental crises of grave economic significance.

International development agencies and multilateral development banks and debt-ridden Central American governments have supported and are supporting projects which result in short-term gain and long-term environmental costs. Present development practices must not be allowed any longer to place at risk the progress of future generations. And certainly that means that some tough and wise decisions are going to have to be made both by Central American governments and by international assistance agencies if these countries are going to be able to cope with the overwhelming problems of economic development.

It is my hope that this subcommittee hearing will be our first examination of the environment and development situation in Central America, the first opportunity to determine how the strategy of environmentally sustainable development can be applied to the problems of Central America, and the first exploration of possible new legislative initiatives that may be needed to ensure economic stability in Central America.

We are pleased to have representatives from the embassies of the Central American countries: Jose Orive of Guatemala, Reuben Robles of Costa Rica, Ernesto Rivas of El Salvador, Marcos Wheelock of Nicaragua, and Mrs. Edith Glynn of Honduras. We are delighted to have them here and are glad for their continuing interest in what we are attempting to do.

We try to limit these panels to about 50 minutes each. We will have Mr. Malcom Butler, Deputy Assistant Administrator, Bureau for Latin America and the Caribbean, Agency for International Development; Mr. David Wirth, the senior attorney for Natural Resource Defense Council; and Jeff Leonard, the Conservation Foundation and author of "Natural Resources and Economic Development in Central America." We are pleased to have Mr. Leonard. To start this panel, we will have a slide presentation by Mr. Leonard.

Thank you all for being here.

STATEMENT OF H. JEFFREY LEONARD, CONSERVATION FOUNDATION AND AUTHOR OF "NATURAL RESOURCES AND ECONOMIC DEVELOPMENT IN CENTRAL AMERICA," WASHINGTON, DC

Mr. LEONARD. Thank you very much, Senator Sanford. Good morning.

I would like to make three key points about the possibilities for achieving environmentally sustainable development in Central America this morning.

First, Central America's economic future is heavily dependent upon the land and the natural resource-based industries. Virtually no one believes that the industrial and service sectors of the Central American economies will be able to generate the number of jobs necessitated by population growth in the coming decades.

Second, throughout the region much of the worst environmental destruction we see is actually an indicator of enormous economic waste and inefficiency that has accompanied the development process. In effect, much of the economic development that has occurred in recent decades has resulted from increases in the rates of exploitation of resource systems rather than the management or the increases in the yields.

And finally, I want to emphasize that the environmental future of Central America and, indeed, the economic future of Central America's rural areas depends fundamentally upon the wise management of the natural resources as an essential component of sustainable economic development.

Let me try to illustrate those points.

The population of the seven countries of Central America is now 27 million. It has doubled since 1960. Still, it is easy to think of the region, with the obvious exception of El Salvador, as a land rich one which can absorb continuing population growth.

Let's look at the region, though, in relation to the amount of arable land per person, and we can see that the other countries bunch up much more closely to El Salvador in terms of their population pressures.

Indeed, over 80 percent of the Central American population lives in a small number of heavily populated corridors shown in yellow. And this demographic pattern only intensifies the competition for land and resources in and around burgeoning urban areas. This is Tegucigalpa. These areas have nearly doubled since 1970 and urbanization continues at a more rapid pace than overall population growth.

Despite such rapid urban growth, all the countries remain heavily dependent upon the renewable natural resources for economic support as this graph shows, the majority of total export earnings derived from primary agricultural commodities, cotton, beef, sugar, coffee and bananas. And a very high percentage of the work force remains directly dependent upon the land for a living. Even the welfare of the modern industrial and urban sectors is dependent upon the renewable resources since the vast majority of all electricity in the region comes from hydropower.

The irony of this fact is just how much of the economic potential of the resource base in Central America is being squandered. Take forestry, for example. In 1950, Central America was predominantly a forested region. These sequential views of 1970 and 1985 show that the region has very rapidly been shorn of its dense forest cover.

Such rapid rates of deforestation have caused severe economical strains throughout the region. For example, critical watersheds in upland areas have been heavily deforested in recent years. And this can be correlated with increased downstream flooding from siltation in the riverbeds and greatly increased storm runoff from barren hillsides.

Well, let's ask who has benefited from an economic standpoint from this deforestation. Remarkably only a small portion of the timber cut in the region is ever used for any commercial purpose. Of 51 million cubic meters of tropical hardwoods cut in 1980, less than 40 percent was pulled out of the forest as roundwood logs, and less than 2 percent of the total hardwood cut ever reached Central American sawmills for use in wood-based industries. This means that most of the hardwoods each year cut in Central America are being burned in place or left to rot in cleared pastures.

Without major reforestation efforts, the future economic costs of this waste are likely to be substantial, especially as the value of tropical hardwoods continues to climb. Yet, reforestation today in Central America only amounts to about 9 percent of the annual deforestation rate.

Other natural resource-based industries such as agriculture and fisheries show the same high degree of waste and inefficiency. For example, the Kissinger Commission conservatively estimated that half of the farms in the region use land inefficiently. A good indicator is found by looking first at a map of prime commercial agricultural areas and overlaying this with a map of areas where 50 percent or more of the arable land is in pasture. Even today, as much two-thirds of the flat, fertile farmland in the Pacific coastal strip of Central America is used for extensive cattle production rather than intensive crop production. This is a bit like having cattle run through the fields of Iowa and Kansas rather than wheat.

Let's look at Costa Rica where the government estimates that three-fourths of all the land already cleared for agriculture is currently in pasture.

Now let's look at the amount of export dollars earned in 1980 per square kilometer of land devoted to major agricultural activities. Beef cattle ranching is an extremely low contributor of export revenues in comparison to alternative land uses.

The irony, of course, is that the original rationale for the beef cattle industry was to earn export revenues by supplying United States and European markets. Indeed, much attention is paid to the so-called Hamburger Connection, the creation of pasture from forest in Central America to supply beef to fast food chains in the United States.

But the beef cattle industry in Central America is increasingly driven by domestic demand. Exports of beef have fallen in recent years throughout the region as shown here in Costa Rica. Especially if it is not generating export income, the economic contributions of the cattle industry need to be evaluated against other potential agricultural land uses.

One answer to the problem of inefficiency in the beef cattle industry is to upgrade the quality of pasture and to increase the number of head per hectare of land. But this is an extremely complex challenge. In the Pacific regions, it is necessary for more intensive cattle operations to use large amounts of protein supplements during the dry season. Yet, the domestic feed and protein supplement industry lags throughout Central America. Large amounts of grain supplements are currently imported.

The overwhelming emphasis on beef cattle for export is only part of an overall agricultural strategy that has been pursued for several decades in Central America. Government programs have provided incentives and assistance that encourage large farms on prime agricultural lands to shift from staple crops such as grains and beans to commodity crops such as cotton and sugar or cattle production.

In Guatemala, for example, government policy of providing imported grain below cost in urban areas dampen the economic incentives for domestic grain production at the same time that high export prices and government credit policies encourage greater production of export crops.

The ensuing changes in land use patterns can be clearly seen in this slide.

The results of such agricultural policies throughout Central America can be seen in declines into the 1980's in cereal production in the region. Even where governments have recently taken actions to reverse the decades of disincentives and bias against food production, a large portion of this increase in basic food crops has resulted from the clearing of previously forested land rather than a reduction of land devoted to export crops.

Incidentally, the Costa Rican Government recently issued a report concluding that the only way to increase substantially food production in that country was to use existing agricultural lands more efficiently—that is, cattle pasture and lands in export crops.

Today the changing economics of beef and the other traditional exports of Central America, such as bananas, sugar and cotton, is promoting a large push to target a wide range of specialty crops to build future agricultural exports of Central America. Palm oil, cut flowers, mangos, papaya, oranges, pineapples, numerous other crops and commodities are being introduced helter-skelter across the countryside.

A potential problem with many specialty crops, however, is their high dependence on chemical inputs. Indeed, pesticide use in areas of export oriented agriculture is already astronomical in Central America, reaching levels that are 25 to 30 times greater than recommended doses. One reason is that governments throughout Central America heavily subsidize pesticides, in effect, overstimulating consumption. To add to this, large landowners frequently pay aerial pesticide applicators by the amount of chemical sprayed rather than by other means.

Growing pest resistance throughout Central America has only compounded the problem of excessive use with farmers now spraying up to 50 and 60 times per season. The result: a per capita pesticide poisoning rate in Central America is about 1,800 times greater than in the United States and among the highest in the world.

Another concern with the current thrust toward ag diversification is that it pays little attention to the serious problems of soil erosion, land management and water resource management.

But there are also serious economic risks associated with the fact that all the countries of Central America are simultaneously seeking to sell the same agricultural specialty crops in international markets. The real question is how much cardamom will the U.S. market be able to absorb in the 1990's.

In summary, while current diversification programs are extremely important in the region, they do not constitute a sufficient response to the dual problem of economic inefficiency and environmental destruction in Central America. One is drawn, in fact, inexorably to the conclusion that increasing the productivity and the access to productive resources of the region's 10 million poor farmers is the most critical step for meeting both environmental and economic goals. Investment in the rural poor is where the Kissinger Commission and other studies have concluded that the greatest possibilities for raising economic productivity in Central America lie. But helping the rural poor to become better producers is also the only way to head off an ecological disaster of massive proportions in the region.

In association with the book that I recently published with the sponsorship of the International Institute for Environment and Development and AID, I was able to work with nongovernmental organizations in the region and in the United States to examine ways to contribute to conservation-oriented agricultural development in Central America. Among other things, the program we developed calls for increased investment in local processing, for forests, agriculture and fisheries commodities, for improved agricultural extension services for small farmers, for financial and technical assistance to stimulate local animal feed production which would reduce dependence on imported protein supplements, for the introduction of agroforestry, integrated pest management, and nitrofixing techniques.

I believe that this integrated program would create rural employment, slow population migration to overcrowded urban areas, reduce import dependence for essential agricultural inputs, and help to stave off accelerated deterioration of the region's natural resources. And I believe it deserves serious consideration because unless the dual problems of inefficiency and environmental destruction in the rural sector are addressed forcefully in the coming decade, little progress can be expected toward raising the level of social and economic development in Central America.

Thank you very much.

[The prepared statement of Mr. Leonard appears in the appendix.]

Senator SANFORD. Thank you very much, Mr. Leonard. We will come back and discuss these issues after we have heard from the other members of the panel.

I now would call on Malcolm Butler, whom I already noted is the Deputy Assistant Administrator for the Bureau of Latin America of AID.

STATEMENT OF MALCOLM BUTLER, DEPUTY ASSISTANT ADMINISTRATOR, BUREAU FOR LATIN AMERICA AND THE CARIBBEAN, AGENCY FOR INTERNATIONAL DEVELOPMENT, ACCOMPANIED BY JIM HESTER, CHIEF ENVIRONMENTALIST FOR LATIN AMERICA AND THE CARIBBEAN; AND STEVE WINGERT, CHIEF, AGRICULTURE AND RURAL DEVELOPMENT OFFICE

Mr. BUTLER. Thank you very much, Mr. Chairman, for the opportunity to appear before the subcommittee.

I hope these hearings will make clear that the environmental problems which we are facing in Central America are enormous today. I hope, however, they will also make clear that the American people can be proud of the contribution that their foreign assistance dollars are making toward resolving some of these issues.

Mr. Chairman, I am not an environmental expert. I am personally and professionally committed to dealing with environmental concerns, but I would like to introduce two real experts that I have here with me today. Jim Hester is our chief environmentalist for Latin America and the Caribbean. He oversees the work of the 12 professional environmentalists that we do have working in Washington and in the field. Mr. Steve Wingert is the chief of our Agriculture and Rural Development Office and, of course, he is very active in ensuring that this critical sector of our activities takes full account of environmental concerns.

Mr. Chairman, I think it is very hard to overestimate the importance of environmental matters to the development of the Central American region. The impact is, indeed, a very broad one. I think it must be a truly sustained economic development if we are to get from the efforts which we are making with our foreign assistance funds the stable democracies which are our real objectives in this region. We have achieved some very important successes in macroeconomic terms. We have achieved some important successes in very human terms. And I also think we have achieved some important successes in environmental terms.

With your permission, Mr. Chairman, I would like to submit for the record a brief summary of the progress which we have made with the foreign assistance funds that we have used so far.

Senator **Sanford**. We would be pleased to put that in the record.

[The information referred to appears in the appendix.]

Mr. **Butler**. Thank you, sir.

As we continue with this effort, though, I think it is very important that we build our efforts on the bedrock of environmentally sound policies and programs rather than the sort of quick fixes that can produce very short-run economic returns. Resource exploitation is a very complex economic issue. It is not an issue which we see as a fringe issue. We see it as being central to the development process.

And I am happy to say that AID has played an important role—I would go so far as to say a leading role—along with the nongovernmental institutions, American and local in the region, in raising the sensitivity of the governments to environmental concerns. We have not only ensured the environmental soundness of the individual projects which we support, but we have undertaken environmentally proactive projects to raise the sensitivity of the governments and to encourage local nongovernmental organizations. And we have kept environmental issues very high on our policy agenda as we have discussed broader development issues with the governments in the region.

I believe that growth makes sense only when it is achieved in an environmentally sustainable way. I believe that when a project is environmentally disastrous, it is also developmentally disastrous, regardless of whatever the short-term returns may be. And I have no doubt that that point of view is shared throughout our agency by professionals and by management as well.

Mr. Chairman, we have 14 major ongoing projects in Central America with environmentally sustainable development as either the principal objective or as a major component. The total value of all those projects is about $100 million. I think that that is a credible effort and it is one that my formal prepared testimony details extensively, country by country. I don't think it is necessary that I repeat that now, in the interest of time, but I would call readers' attention to the fact that there is quite a good description of the activities that we have under way. Only by looking at those specific projects do you appreciate—this is the guts of what we are accomplishing. So, I think it is important that I call attention to those individual projects.

These projects, if I may just summarize very briefly, deal with the concerns of small farmers to make sure that the development that they undertake in the agriculture sector is environmentally sustainable. We work with local NGO's, as I mentioned. We work very carefully with the governments to build their institutions and their capacity to conduct research and to carry out programs to protect their environments. We work actively and directly in research ourselves.

And I think it is important to note, Mr. Chairman, that this is a very dynamic process, in the sense that a number of our ongoing projects are stepping stones toward broader projects which we will be beginning next year or in subsequent years. Similarly, a number of the successful projects now under way are built on projects which we began on a pilot basis earlier. So, it is a dynamic process and we are constantly building on what we are able to achieve.

We have a process that we carry out every spring with all our missions. They bring in documents which we call Action Plans. And those Action Plans are our chance to interact with our missions regarding their progress over the last year and their proposals for the next year. We are in the midst of that process right now, and we have not had a single one of the countries in for such an exchange with Washington where environment and environmental concerns have not been an element of the discussion. So, in our day-to-day work, as we administer the foreign assistance program and plan for the future, the environment is a key part of our considerations. And I would like you to know that this is not something that we talk about just when we come up to talk to the Senate, but something that we consider every day.

Mr. Chairman, I think that AID is leading by example on the complex issues of environmentally sustainable development in Central America. We are committed to this goal for the long haul, and I am happy to say that the Central American countries with which we are working are rapidly becoming sensitized to this issue. There have always been elements within those governments who understood this. I think, however, the nongovernmental organizations, AID, the U.S. Congress, and those elements within those countries themselves are working very effectively to increase the sensitivity of governments to these issues.

However, it will remain a collaborative effort. We will continue to be very active in this area, and we will continue to depend also on the expertise and the commitment of local and U.S. NGO's. And, Mr. Chairman, we will also depend on the continuing support for our foreign assistance program by the Congress.

To summarize, it is accurate to say that we really have let some environmental problems get ahead of us, and we have some catching up to do. I think being candid in that respect, however, I also can say candidly that we have already made some important progress.

We have the problem of a reduced budget, Mr. Chairman. We are doing our very best to wring from these reduced resources the very most we can in building our capacity to deal with environmental problems. But we certainly agree with you that we have to ensure that every dollar which is spent in our foreign assistance program is used not only for economic growth, but also for development of a type which is truly sustainable.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Butler appears in the appendix.]

Senator **Sanford**. Well, thank you very much. We will come back and talk a little about these things.

I would now like to ask David Wirth, Senior Attorney for the Natural Resources Defense Council to give us his positions.

STATEMENT OF DAVID A. WIRTH, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL, WASHINGTON, DC

Mr. WIRTH. Thank you, Mr. Chairman. Also in the hearing room today is Stewart Hudson of the National Wildlife Federation's international program who is an expert on the environmental performance of the multilateral banks in the region.

I am also testifying today, besides on behalf of NRDC and the National Wildlife Federation, on behalf of the Sierra Club, the Environmental Policy Institute and the Earth Island Institute's environmental project on Central America. Together these organizations represent more than 6 million individuals in this country distributed through every state. Each of these organizations works closely with environmental organizations in Central America, our counterparts in the region.

Mr. Chairman, Central America has long been an area of the world where the United States has asserted a strategic interest. For this reason, U.S. policy in the region has a powerful influence. The five organizations that I'm representing today encourage the subcommittee to direct that influence toward the goal of environmental protection.

I would like to build on some of the points that Mr. Leonard made in his presentation and enumerate specific concrete actions that the subcommittee can take to encourage environmentally sound sustainable development in Central America.

First, the subcommittee should send a clear signal that activities directly or indirectly sponsored by the United States in the region must not have unnecessarily adverse environmental consequences.

Second, a significant component of bilateral and multilateral development aid for the region should be devoted to undertaking this design to preserve, enhance and restore the resource base.

And third, notwithstanding the military conflict in the region, the United States should support cooperative regional efforts to encourage environmental protection in border regions. There is room for considerable progress in each of these areas, and I would like to illustrate each with an example.

The Department of Agriculture and U.S. AID currently have under consideration two unnecessarily environmentally harmful activities known as MOSCAMED and CAPMED. These two projects would use U.S. funds to eradicate the Mediterranean fruitfly from Guatemala and ultimately from all of Central America. Both would involve aerial strip spraying of the pesticide malathion and use of the suspected cancer causing fumigant methyl bromide. The projects could deplete biodiversity in the region and could harm the export economy of the countries in the region. Studies have already documented that on purely economic grounds, the massive expenditures for these projects, which could total about $400 million from the United States, will not justify the minimal reduction of the medfly risk within the United States.

Because of these concerns, the appropriations committees of both Houses of the Congress suspended these projects pending completion of an environmental assessment by U.S. AID That study is due to be transmitted to the Congress by July 5.

We have been working closely with Central American organizations to terminate these projects, and I strongly encourage this subcommittee to hold a hearing upon receipt of the AID report. That hearing will be an occasion for making the larger point that this subcommittee expects all U.S. sponsored activities in Central America to meet strict environmental standards.

Mr. Chairman, that portion of my statement deals with activities that are sponsored directly by the United States Government but, of course, the activities of multilateral institutions such as the World Bank and the Inter-American Development Bank are also very important in the region. My prepared statement summarizes the environmental problems connected with several notoriously unsound projects financed by the World Bank and the Inter-American Development Bank.

I would prefer not the dwell on past difficulties with these projects, but to emphasize the positive role that the multilateral banks can play in encouraging environmentally sound sustainable development in Central America.

The World Bank and the IDB can and should develop projects that rectify the pressing environmental problems of the region that have already been identified for us by Mr. Leonard: deforestation, loss of valuable croplands, and depletion of biodiversity. These institutions should make information about their activities freely available to the public which they do not now do, and should open their project and planning procedures to participation by the public in the region.

By the way, Mr. Chairman, AID tends to be quite good on information availability and also in encouraging public participation in the projects that they finance. To their credit, they have sponsored a public hearing in Guatemala on the MOSCAMED project, the medfly project that I just described. But this is the kind of thing that the multilateral development banks rarely, if ever, do.

All of these reforms are required by U.S. law, but relatively little is happening within the institutions themselves. After working on the issue of the multilateral banks in the environment for more than 2 years, I think I can assure you that these institutions will not commit to projects and policies designed to preserve, enhance and restore the resource base without considerable additional prodding and from this subcommittee in particular.

For this reason, I would urge the subcommittee to request from each of the multilateral development banks via the administration a statement of commitment describing which of the statutory reforms that have been enacted for the past 3 years running by the appropriations committees will be accomplished within a year of today's date. Firm promises are particularly crucial this year when this committee will be requested to authorize a massive capital increase of the World Bank.

Lastly, Mr. Chairman, we ask the subcommittee to encourage an ongoing program of successful environmental cooperation in border areas undertaken by Central American countries without outside assistance and known as Peace through Parks. Several border parks have already been established and a larger cooperative effort between the governments of Nicaragua and Costa Rica would preserve an additional 6,000 square kilometers of pristine tropical rain forest and wetlands.

Unfortunately, the administration has allowed larger political considerations to create unnecessary impediments to further progress. We encourage the subcommittee to communicate directly with the heads of state of the region to pledge its support for this apolitical effort that will benefit the environment and all the peoples of Central America.

Thank you, Mr. Chairman, and I'll be glad to answer any questions that you might have.

[The prepared statement of Mr. Wirth appears in the appendix.]

Senator **Sanford**. Well, thank you very much.

I think we might, Mr. Butler, have Mr. Wingert and Mr. Hester take these two seats in case you need to refer any questions to them. I may think of a question myself.

I thank you for your testimony, and it is certainly very thoughtful, thorough, and helpful. We will have all the statements you have presented placed in the record.

Let me direct this question at all of you because it seems to me that we can have all the kinds of policies and concepts that we want, but how do we get them carried out? All you have to do is look at the history of this country. Look at the poisoning of the forest around Copperhill in Tennessee half a century ago, and it is still denuded. It looks like a wasteland. Chopping wood to fuel the furnaces that put out the poison gases from the copper smelting that caused that damage. It is still not corrected. We can look at the Dust Bowl. From the time we had hydroelectric power—now over 50 years—we have had problems with erosion and pollution of rivers and silting of dams.

Now, with all of the massive resources that the United States has and all that we mobilized in the New Deal days, when for the first time we became aware that we should do something, what can we show for it? What do we have in the way of extension services? What do we have in the way of any services that deal with productivity on the one hand and preservation of the land and proper environmental concerns on the other? Where do we start working to help the people in other countries such as in Central America, carry out the concepts that we sit up here and proclaim are worthy enough to be tied to our economic assistance? How do we get it done? Maybe Jeff Leonard can start talking about that and I would welcome any of you to chime in.

Mr. **Leonard**. Mr. Chairman, I will try to answer briefly. I think you have touched on perhaps the most critical issue facing us and Central America in the next decade.

But we do stand on a bit of a threshold right now. As I emphasized in my testimony, and I think most economic experts on the region will tell you, what has been occurring isn't working. The beef cattle industry is not a good generator of exports. Most of the traditional export agriculture industries have faced declining prices, protectionism in the developed countries and so on. And so, there are major land use changes portended for the coming decade in the future. You have, as David Wirth said a minute ago, the Inter-American Development Bank, because of political pressure, searching desperately for reforestation projects in the region. So, I think a first step that we can do is just grab hold of the decisions and the choices that need to be made now and understand the consequences for the next generation.

Had we been able to understand better the economic consequences of, say, beef cattle as we in the United States pushed the beef cattle industry upon Central America in the 1960's and into the 1970's, had we been able to better project demand—of course, that is extremely difficult, but there are many aspects of the decisions being made today, if we can play them out in the long term, as Mr. Butler emphasized, it could be very, very important. If we can work with the IDB in a positive sense to show them, in effect, that maybe the reforestation program they are talking about now is not going to solve the large problems because, yes, a lot of trees will be planted, but they will be planted on prime agricultural land instead of in the areas where reforestation is needed for other purposes, and if we can begin for the first time in our development assistance program to really focus on the small holders in the region—there are 10 million small holders in the region which the Kissinger Commission emphasized. Raising their productivity, could have the greatest single impact for economic development in the region.

Thank you.

Senator SANFORD. There are 10 million farmers did you say?

Mr. LEONARD. There are about 10 million small holders in the region. That is over one third of the total population.

Senator SANFORD. Before we go on, I want to ask one question. What do you think about land reform and the necessity for it or the degree to which it has been accomplished?

Mr. LEONARD. Land reform is critical, but as important as the actual land reform is political stabilization I believe. For instance, in addition to the serious land distribution problems, you have the fact that many of the wealthiest landowners in the region remain in an inefficient industry like beef cattle because in times of political turmoil, obviously, you don't want to hire people to work on your lands. You could, de facto, turn around and find you don't own the lands tomorrow.

The other aspect besides land reform and political stability I think is the whole stability of tenure. There is a lot of land reform going on in the region in the sense of distribution of lands. Often there are distributions of lands that have previously not been occupied by large landholders—e.g., forest lands. But even in the cases where they are being distributed by land agencies, secure title often either is difficult to obtain or it depends on deforesting to demonstrate effectively that you are improving the land.

We have a project—the Conservation Foundation and the Wildlife Fund have a project in Costa Rica supported in part by USAID where we have concluded that the fundamental issue for us is to make sure that the people have the security of tenure. They occupy the lands now, but the security isn't there.

Senator SANFORD. Well, we will come back to that maybe at some other hearing.

If we might go back now to the educational efforts of getting across our concepts. Any of you?

Mr. **Butler**. Mr. Chairman, I agree with Mr. Leonard who started off by saying that you really have touched on a key question. One of the first rules for developmentalists is that you really haven't solved the problem until the people that you are working with in the host country have taken on that problem as their own, assumed ownership of that problem. In the short term, again as Mr. Leonard says, it is very important that we make sure that external inputs into the area are not only not destructive but, in fact, constructive. That is in the short term. In the medium and certainly over the longer term, we have to develop the institutions and the interest in the countries in which we are working.

I am happy to say that we see progress in that regard, and that AID has been part of that progress. The U.S. NGO's have been a very critical part of it as well. And I think there are institutions now in each of the Central American countries with which we are all dealing which are increasingly part of it. Costa Rica does have a particularly strong set of institutions, but I wouldn't want to leave out any of the others. To me this is a critical issue, perhaps the most critical issue. And it is one that we are doing our best to deal with.

Senator **Sanford**. Thank you.

Mr. **Wirth**. Thank you, Mr. Chairman.

I would just echo what Mr. Butler just said which is that in the long term strategies for sustainable development have to come from the region itself. There is no way to guarantee that development assistance that is provided to the region will actually result in environmental benefit until the institutions in the countries concerned are strengthened and people there come to realize the importance of maintaining the natural resource base.

However, development assistance institutions can help by making money available for specific projects. We would recommend that additional money be made available for community-based forestry projects, for agricultural projects that encourage sustainable development, and for strengthening local government agencies.

Senator **Sanford**. How would you strengthen the local government agencies?

Mr. **Wirth**. One way is to provide experts from the United States or from other developed countries to advise on how local institutions can be strengthened. For instance, some countries in Central America and other parts of the world have relatively little in the way of infrastructure to deal with pesticide problems that Mr. Leonard identified earlier on. And, in fact, in some cases private industry and private environmental groups can provide some expertise to these countries to help train people to manage their own pesticide and other agricultural problems.

Senator **Sanford**. Well, sending an expert to the region really does not strengthen country institutions, does it?

Mr. **Wirth**. I'm sorry?

Senator **Sanford**. I said it doesn't really strengthen an institution by sending in an expert.

Mr. **Wirth**. It does if that expert can provide training for local people who then can turn around and deal with these issues on their own. I'm not advocating, Mr. Chairman, that the United States nationals or nationals from other developed countries actually run these programs, but that they can provide some expertise to help get them going quickly.

Senator **Sanford**. Well, it is very easy to get an expert to help on a specific problem, but an expert to help on institutional building is much more difficult it seems to me.

Mr. **Wirth**. Agreed.

Senator **Sanford**. Well, Mr. Wingert, I believe you have a dozen and a half environmental people in Central America. Tell us what they are doing and how they relate to what we are talking about.

Mr. **Wingert**. The environmental officers that you mentioned work with Jim Hester, who is the chief environmental officer for our Bureau. In our missions in the field, we have agricultural officers who design programs in conjunction with the environmentalists, who help assure that these programs address the environmental concerns and meet our regulations and our objectives.

Perhaps I could have Jim comment specifically on your question.

Senator **Sanford**. Yes, but more specifically on what can they do to assure that they leave in place a stronger local capacity to deal with this in the future.

Mr. **Wingert**. I think one example could illustrate what we have been able to do in the region to try to address the problem and help create a viable institution to work on the issue in the future.

In Honduras we began in 1982 the Natural Resource Management project, with total AID financing of about $16 million, working with the Ministry of Natural Resources in Honduras to improve its own internal capability to plan and adopt policies for more effective natural resource management. The project also directly supports the improved management of one specific watershed, the Choluteca River Basin watershed, to stop erosion and improve management of that region.

The Government of Honduras has not only adopted the practices that the technical advisors have developed with them for that specific region, but they have now adopted this technique and the technologies for application throughout Honduras. It is a concern which has grown in importance and recognition within the Government of Honduras, and they are dedicating substantial resources of their own to addressing it as a result of this assistance.

The project has assisted at this point 10,000 farmers on 35,000 acres of fragile lands. We are planning a follow-up project that will expand this effort to other river basins and work with a total of about 50,000 small farmers.

Senator **Sanford**. Mr. Hester?

Mr. **Hester**. With regard to the number of environmental people we have, they are rather difficult to count because we try to make everybody in AID an environmental person or sensitive to those kinds of issues. Let me clarify that we have 11 full-time, fully trained, environmental people working in our region, 5 in Washington, 6 based in the field. Two of these 11 are AID officers, and the remaining nine are personal service contractors from other Federal agencies funded through participating agency service agreements.

Every mission has a person designated as responsible for environmental matters within that mission. The regional staff of 11 professionals acts as circuit riders and coordinates environmental issues within the AID missions and AID programs and with the governments themselves.

We all deal extensively with the governments. We meet with the ministers, with the various individuals within the ministries. We meet with the local environmental organizations, which we feel to be as important as the government, to help them support their government the same way that environmental organizations in the United States support the various kinds of environmental programs our government runs.

Senator **Sanford**. Now, when you say "ministries," specify.

Mr. **Hester**. In the last several years within the Latin American region and including Central America, there has been a very strong move toward escalating the level within the government of the people responsible for environment and natural resource management kinds of issues. In the past it has principally been a small group of people off in some dark corner of the ministry of agriculture perhaps. However, recently several of the countries have escalated that to a full ministry level similar to a department in the U.S. Government or else taken them out of the ministry of agriculture and made them autonomous bodies or made presidential level commissions.

Senator **Sanford**. Is there any institution comparable to the extension services of the land grant colleges?

Mr. **Wingert**. Within Central America, the extension services generally depend directly on the equivalent of the U.S. Department of Agriculture, the ministry of agriculture, or in some countries it is known as the ministry of natural resources. They are structured and work on many of the same lines as our extension service, but they do not tie into the university systems as directly.

Senator **Sanford**. Are they efficient or do they have bureaucratic problems?

Mr. **Wingert**. There are problems in many of the extension services due to difficulties in the governments' ability to provide sufficient financial support to pay adequate salaries and fund personnel travel to the field. However, we do have examples, such as the Natural Resource Management project that I just mentioned, which is carried out through the extension service of the ministry of agriculture and is a very effective program. It is a matter of working with these extension services to try to develop new techniques and mechanisms, such as use of paratechnicians, and use of mass communications to expand the efforts of what, unfortunately, has to be a rather limited number of actual government employees.

They are also working in many cases through farmer organizations, such as cooperatives, within the region which again provides greater ability for the government agencies to reach out to a broader part of the population.

Senator **Sanford**. Do you have a feel for what their stated objectives are? What are the extension services trying to do?

Mr. **Wingert**. I do. They are quite broad, and it varies from country to country somewhat. But the agricultural extension service of Honduras, for example, has approximately 300 extension agents to work with about 400,000 farmers on a wide range of activities. Objectives vary everywhere from improving basic grain production, which is probably the principal activity, trying to improve basic grain production technology, to concern for soil erosion, improved access to water resources where available, and home economics and 4-H activities. They are responsible for a similar broad range of activities comparable to what the U.S. extension service undertakes.

Senator SANFORD. Is that the place where the assistance really ought to be given?

Mr. WINGERT. We are working with a variety of organizations. We feel that a variety of different approaches is required. The government extension agents are definitely one key set of actors for this effort. We are also working very heavily throughout the region with the nongovernmental organizations, private voluntary organizations, who can provide services to a variety of the population centers that the extension agents may not be able to get to.

Again, we are also working with farm organizations which can in many cases provide very effective services.

Senator SANFORD. Thank you very much. We would be glad to have more information on how we might create stronger agencies to carry on the things that we can't really carry on except on a project by project basis.

Mr. Wirth, you talked about the World Bank and the MDB's, and how we ought to do a better job of getting them concerned enough to take action on environmental matters which promote sustainable development concepts. Does the Treasury Department have adequate authority to do that?

Mr. WIRTH. Mr. Chairman, I think you have raised a very good point.

In fact, the Treasury Department does have, I believe, sufficient or nearly sufficient authority to encourage sustainable development or encourage these institutions to develop strategies that encourage sustainable development.

For the past 3 years, the appropriations committees have enacted legislation in connection with appropriations for these institutions. And last year for the first time permanent authorizing legislation was enacted.

The goals of this legislation are several. One is to encourage increased staffing at the institutions, increased professional staffing. A second is to encourage public participation in the design of projects, the execution of projects, and the monitoring of projects. This is very crucial to make sure that projects undertaken in a particular area actually benefit people and actually benefit the environment. And one other crucial element is access to information. Currently local people have relatively little access to information about multilateral bank projects that are planned for their countries.

While the institutions have made some progress in implementing these reforms, I think that that progress has been rather slow. The World Bank has staffed up its environmental department, but the Inter-American Development Bank still has only a handful of staffers that deal with environmental issues.

On the question of public participation in the design and execution of projects, there has been relatively little progress, and both the Inter-American Development Bank and the World Bank still keep information about projects strictly secret.

So, that is why, Mr. Chairman, in my opening statement I suggested that this committee should look a little closer at how that legislation is being implemented at each of the banks. The Treasury Department has been quite good about encouraging the institutions to move further. I think that the inertia is on the part of the institutions themselves.

One other point that I would like to make, Mr. Chairman, is that I think more work could be done to encourage other countries, and particularly the other donor countries, to work together with the United States toward realization of these goals within the institutions themselves. And if there is one area where the Treasury Department might be able to do a little bit more, that's it. But I would like to stress again that I think that the legislation that we have is quite adequate, but it is a question of implementing that legislation, and we are looking to the institutions themselves to make progress.

Thank you.

Senator SANFORD. Is it your observation that the early warning system of AID is working?

Mr. WIRTH. Well, Mr. Chairman, we realize the limitations of the early warning system. In certain countries like Brazil where AID doesn't have much of a presence, it is very difficult to collect adequate information. But still, I think more resources could be put into the early warning system.

Just last year we saw a project proposed by the World Bank in the Sudan that provided massive pesticide subsidies to the tune of $50 million for a country that is notorious for using pesticides in an environmentally unsound manner. This project wasn't picked up by the early warning system and, in fact, there was what I would describe as a mad scramble right before the vote to figure out whether this was a project that the United States should support.

I am not meaning to fault the early warning system. Again, we understand its limitations. But I think that more emphasis could be put on the early warning system by the Congress and a bit more in the way of resources devoted to the early warning system.

I would like to make one other point in connection with what I said earlier about the multilateral banks which is that the early warning system provides an opportunity for the United States to share information with other governments and particularly other donor governments. And there is an explicit instruction to this effect in the appropriations legislation and the authorizing legislation.

I think that more could be done to mobilize other countries with the factual information collected through the early warning system to, again, realize the shared goals of those donors at the multilateral banks themselves.

Senator SANFORD. Well, Mr. Butler, I will give you a full opportunity for rebuttal, but let me switch the subject just slightly.

What is your attitude toward the spraying for Mediterranean fruitflies? Is that necessary, and is that a big problem, and is spraying the solution? We could get Jerry Brown to come in here and talk about it.

Mr. BUTLER. Mr. Chairman, I wouldn't want to try to rebut the comments that Mr. Wirth has just made. I will not say that we are getting everything that we hope to get out of the early warning system. It's a new system. It's a labor-intensive process. We are still sensitizing our missions. We are getting some results, and some of those results are important. But there are limitations such as the fact that, as Mr. Wirth pointed out, we don't have environmental experts in some of the countries.

We did, however, uncover a couple of projects in Ecuador; even without a presence in Brazil, one Brazilian project; and another important project in El Salvador, a sewage project, all of which we did factor into the early warning system. And I think it did produce some results. I will, however, be quick to say that we are still trying to get more out of that system, and I agree with Mr. Wirth's comment on that point.

On the question of spraying in Guatemala, I think it is important to recognize that AID appreciated the encouragement we received from Congress. We had already acted, however, to terminate funding for those activities with the funds that were under our control, and we moved rather aggressively to deal with the other agencies here in town who were involved.

We have about 20 people right now on a team in the field studying the environmental impact of these proposals. And, as Mr. Wirth pointed out, we are having a meeting at the end of May in Guatemala, a public hearing where we would hope anybody who is interested in participating would come. They will have drafts of the information we have been able to put out. And we will then have a final report which will be available to the Congress in early July.

In response to Mr. Wirth's earlier comment, we would be happy to participate in a hearing if you choose to have one at some point. However, let me ask Mr. Hester or Mr. Wingert whether they have any additional or technical comments to make on this.

Mr. **Hester**. Just a couple of small points. One is that this environmental assessment that was referred to was begun in December. It is costing just under $400,000. AID is funding it. It is being implemented through the consortium of International Crop Protection, which is a Consortium of U.S. universities, and a number of Guatemalans who are on the team as well. We are looking at it not only as a mechanism for ourselves to find out the facts before we make a decision, but also to build Guatemalan institutional capacity to do this kind of work on their own.

We look forward to having the final document in both English and Spanish on July 5. We feel it is very important to have it in Spanish because it is not only our document, it belongs to the Government of Guatemala.

Senator **Sanford**. Thank you very much.

Let me just ask one more question, and then we or the staff might have a few other questions we might give you just so we can get some elaboration into the record on one or two of these points.

What connection or leverage relationship does AID have with the multinational development banks that might help AID be influential in backing up the Treasury Department?

Mr. **Butler**. Mr. Chairman, we have not been able to provide staff to those banks, which was one idea which the Congress advanced. Frankly, we don't have the resources to do that right now. We do have contact with them through the early warning system.

And we also have another opportunity coming up now. The World Bank has said that it would be interested in consultative groups on Guatemala, Costa Rica and Honduras. And those consultative groups with other donors would offer us the opportunity to comment on their plans. That is not their principal purpose, but they would offer that opportunity. Consultative Groups strengthen the dialog between ourselves and the banks, and they would offer the opportunity to comment on environmental concerns.

I think frankly that there is—well, I have seen a shift in their attitudes. Shifts in large organizations take time to happen. I think we have to keep the dialogue going.

Senator **Sanford**. Well, thank you very much. I thank all of you for your coming, and thank you for preparing such good testimony. We may very well ask you a few more questions in writing, if you don't mind. Thank you.

We may now ask the other panel, Professor James Barborak of the Department of Natural Resources of the U.N. University for Peace in Costa Rica, Mr. Sheldon Annis, Visiting Fellow for the Overseas Development Council, Mr. Walter Arensberg, Director of the Environmental Planning and Management Project, International Institute for Environment and Development, if you would please come forward.

Let me thank all of you for your preparation, for your good papers, and for your willingness to be here this morning. I'll call first on Professor Barborak. Let me ask you, as you begin, to tell us a little about the organization that you represent.

STATEMENT OF PROF. JAMES R. BARBORAK, DEPARTMENT OF NATURAL RESOURCES OF THE U.N. UNIVERSITY FOR PEACE IN COSTA RICA, SAN JOSE, COSTA RICA

Professor **Barborak**. Thank you very much, Senator, and it is a real pleasure to be able to come up for this visit and be asked to talk before this subcommittee.

The U.N. University for Peace was founded under the charter of the United Nations in 1980. It receives no direct financial support from the United Nations, rather it receives support from a number of bilateral donors and private foundations. Although it is based in Costa Rica, its goal is universal: to promote research and training, including a masters program, on matters related to peace and development. The university has strong communications for a peace program and in addition, has a new natural resources program, which I just recently had the pleasure to join. And we are going to be active in a number of issues, for example, the role of tourism in promoting peace, the role of peace parks, a number of similar issues which show the relationship between sound natural resource use and the promotion of lasting peace.

I have had good pleasure to live and work throughout Central America for over a decade and over that period of time, worked with a number of institutions which receive direct or indirect support from the U.S. Government. And although I go into more detail in my written testimony, I would like to bring up just a few points which I think are extremely important and should be considered by the subcommittee.

The first one echoing something related to your question to Mr. Leonard on land reform. Unless the majority of the rural inhabitants of Central America obtain secure individual or collective land title in coming years, no amount of aid from the United States or any other source will prevent further internal strife or repeats of events such as the so-called Soccer War between El Salvador and Honduras in 1969, which was due more to the poor land use and inequalities in land tenure in El Salvador than any other matter or ideological differences.

And greatly increased United States and multilateral bank support to land use planning, the reform of land taxes, reform of types of loan subsidies which favor poor land use and in addition, greater support for land titling, which was mentioned by Mr. Leonard, and agrarian reform where that is politically feasible are in order. When we provide support to manage protected areas to set up systems of reserves, unless we tie that support to larger integrated development projects which deal with these problems of increasing rural productivity, providing land title to this population of 10 million people who are not really small holders because they don't hold the land—they have no title to it. And because they have not title, they can't get access to extension. They can't get access to credit, and they cannot be expected to push toward higher productivity and sustainable land use unless they have greater ties to the land.

And in addition, if these small holders don't have ties to the land, they tend to invade the properties of larger landowners which provides disincentives to corporations and large landowners to carry out reforestation activities because they are worried about invasion of these areas and the cutting of the very trees they plant.

There is one specific group of rural inhabitants which hasn't been mentioned today, and that is the several million refugees both internal and international which exist in Central America. Now, they do a disproportionate amount of damage to the environment since they have absolutely no ties at all either to the country they are in or to the specific area they are working, and have even less access to title and credit and marketing assistance than do normal small farmers.

Greater U.S. assistance is warranted to efforts to resettle refugees in a permanent fashion and try to deal with this problem of the environmental damage they cause perhaps using things like an equivalence of the Old Works Progress Administration Civil Conservation Corps. Now, in most of the countries these people are located in, local governments, such as the Government of Honduras, prohibits the Miskito Indian refugees from carrying out useful work, and so many of these people resort to illegal activities such as smuggling contraband wildlife, drug production and other things because they are given no other opportunity.

I should note that marijuana production by illegal aliens in Belize is one of the major causes of deforestation in that country, for example, carried out basically by Salvadoran refugees.

Now, investment in human resource development is extremely important and is being carried out to some extent under the CAPS program for Central American scholars recommended by the Kissinger Commission. I would like to point out, however, that training people in their own countries is much more cost effective than any small program training a few thousand scholars in the United States. And because of the debt crisis and reduced government expenditures within those countries, the level of training in many of the local universities has declined drastically. And that will much more than counteract any useful progress by training a few thousand scholars in the United States.

And particularly important isn't just university training, but also training technicians, and training not extensionists based in large cities, but training small farmers to help other small farmers. You asked about the role of outside experts. I would say that we should not even be involved in training the local specialists so much, but we should be involved in training trainers. That is the level where we should put most of our effort.

There are a number of projects supported by USAID's regional office for Central America and Panama until recently—now aid has been cut off there—that aren't truly regional in scope because right now they only cover four of the seven countries of the region. Most of the problems of the seven countries are interrelated, and unless we deal with them in an integrated fashion, no amount of support to bilateral projects or pseudo-regional projects which don't cover all seven countries can be expected to meet their objectives.

A good example would be a large USAID integrated pest management project. Now, although this project might be successful in reducing the use of harmful pesticides in, for example, Honduras and El Salvador, if Nicaragua continues to use pesticides in an unwise fashion, this could also affect fishery yields in the neighboring countries that we are also supporting.

So, the point is that environmental projects are often extremely apolitical, and if there is one area where we should try to assist all seven countries of the region, it would be in environmental recovery and conservation programs.

Now, USAID has carried out in recent years a number of cooperative projects with United States private voluntary organizations and indigenous private groups within Central America. And this type of support is doing a lot of good and often needs local private groups and the Washington-based private groups, such as World Wildlife Fund, IIED—they can do a much better job of administering small projects than can AID. More such support should be provided through PVO funds and to indigenous private groups in the Central American countries.

Now, in spite of the problems that many of these countries and their major governmental organizations face, they are also unable to absorb in an efficient manner massive doses of aid overnight. And so, what I would like to recommend is that where project managers are more worried about meeting physical goals in a short period of time, we often have gross inefficiency. Longer project lifetimes are needed for natural resources projects. You can carry out a bridge building infrastructure project in 3 to 5 years, but if we are going to focus more on conservation programs in the long term, longer project lifetimes by AID and other U.S. Government agencies are needed to really address these problems.

I would like to finally point out that much of the good derived from the specific bilateral and regional projects carried out by

USAID and other United States-supported institutions are offset by the macroeconomic policies which we impose as conditions for further debt relief on these countries. I would just like to mention one example.

Costa Rica's national park system is often mentioned as one of the best in the developing world in one of the most diverse countries on earth. Central America, although it covers less than one-half of 1 percent of the world's territory, has over 8 percent of the plants and over 12 percent of the vertebrates on the planet. So, it is a strategically important area for biological diversity programs.

However, through the restrictions on government spending which the International Monetary Fund and USAID have imposed as part of debt relief on Costa Rica, the payroll of the government's national park service has been reduced by over 20 percent in the last decade. At the same time, a number of projects which our government has helped support have increased the size of the park service by more than 50 percent.

And in addition, their operating budgets have been reduced to near zero. Now, to get around this, they tried to set up proprietary funds to raise entrance fees and hunters' license fees and things like this. And now because of outside pressure once again from the donors, there is pressure on these governments to eliminate the proprietary funds which are the only things that are keeping the park jeeps in gas and the personnel in the field with some amount of material support to do the job which they were assigned to do.

One final point is that there is a direct connection between the environmental degradation and civil strife and the drug problem in Central America. I mentioned already the case in Belize, and many of the areas where production, for example, of marijuana takes place are in protected areas which are understaffed, which have very little resources to carry out overflights. They have a few jeeps, a few radios and things of this nature. I would think that it might be in the best interest of the Drug Enforcement Agency to redirect some of its support to these agencies which are the front lines in the areas where a lot of the production and shipment of illegal drugs is taking place.

Thank you very much for this opportunity to speak before the subcommittee.

[The prepared statement of Professor Barborak appears in the appendix.]

Senator Sanford. Well, thank you very much.

Mr. Annis.

STATEMENT OF SHELDON ANNIS, VISITING FELLOW, OVERSEAS DEVELOPMENT COUNCIL ON DEBT AND THE ENVIRONMENT IN CENTRAL AMERICA, WASHINGTON, DC

Mr. Annis. Thank you, Mr. Chairman.

In the interest of time, I have been asked to confine my oral testimony to the idea of debt-for-nature swaps. This corresponds to the last few pages of my written testimony.

For the record, however, I would like to say that the central issue of my written testimony—the relationship between debt and the environment—is a much larger and more complicated subject than debt-for-nature swaps. These two things are not synonymous, and I would not like my oral testimony to be misconstrued as implying that they are.

The larger point, above and beyond debt-for-nature swaps, is this. Central America's economic debt problem is exacerbating Central America's environmental problem, as Jim was just describing. And its environmental problems, in turn, are exacerbating its debt problems. That is the key point so that without full solutions on both sides of the equation, one set of problems is going to consistently unravel progress that is made on the other.

With that cryptic summary, let me now turn to the narrow question of debt-for-nature swaps. First, let me explain briefly what these swaps are.

The basic idea is this. A nonprofit environmental organization—for example, the World Wildlife Fund or Conservation International—arranges with a commercial bank to buy a piece of discounted third world debt. Basically the U.S. nonprofit group then forgives the commercial debt in exchange for a commitment by the indebted government to set aside parkland or do something else that both parties agree is environmentally constructive, for example, to fund an environmental education program or support local nongovernmental organizations working on environmental issues.

For the government, this is appealing because, in effect, small amounts of dollar denominated debt can be paid off in local currency. So long as the amount is not so large as to risk inflation—which can be mitigated by the use of bonds—then this is a relatively painless and constructive way to shed a small amount of debt.

In order for this deal to be attractive from the U.S. end, the contributing organization must receive a preferential exchange rate that is greater than the secondary market value of the debtor's obligation. This, in effect, multiplies the investment. A relatively small dollar contribution at the U.S. end creates a relatively large amount of local currency when converted through the debt swap mechanism.

The first major debt-for-nature swap occurred in Bolivia. With a $100,000 donation, Conservation International went into the secondary market and purchased $650,000 worth of debt that was then selling for 10 to 15 cents on the dollar. Citicorp in this case acted as financial intermediary. In exchange for forgiving this debt, Bolivia set aside 3.7 million acres of Amazon basis around the existing Beni Biosphere Reserve. Bolivians retain ownership and management of the land. They have set aside $250,000 in local currency as an endowment for managing the land.

In a second swap, the World Wildlife Fund purchased $1 million of Ecuadoran debt from Bankers Trust. It paid $300,000. Ecuador's Central Bank will convert the debt into 9-year bonds, which will be held by Fundacion Natura, a local conservation group. As the bonds gradually are converted into local currency, they will be used to maintain parks and wildlife reserves, train scientists and teach children about conservation. The Central Bank has been authorized to swap a total of $10 million of debt.

This debt-for-nature idea generated a torrent of publicity and interest around the world. Swaps are now being discussed in Argentina, Peru, the Dominican Republic, Brazil, Chile, Jamaica, Mexico, and the Philippines and perhaps elsewhere. In addition, the debt-for-nature idea has prompted many nonenvironmental groups to ask what other activities could also be financed by debt conversions. In recent months I have heard talk of potential "debt-financed" educational exchanges, university consortia, orphanages, microenterprise loan funds, and agricultural projects for medium-scale farmers.

In August, Costa Rica announced a program to convert up to $5.4 million in debt. To keep matters in perspective, it is important to stress that this about one thousandth of Costa Rica's total external debt.

The dollars received through the swap will allow the government to sell interest-bearing "nature bonds". These will help finance conservation programs, which include land acquisition, park management, research, and community education. The swap involves both nongovernmental organizations and official park agencies. The initial $5.4 million in this case has been sold, and I understand that there is now talk of raising the allowable conversion limit up to about $50 million.

Last July, President Arias expanded the boundaries of the Guanacaste National Park. This is something that I know many of you are interested in. This will help secure about three-fourths of the dry rain forest area that has been proposed by University of Pennsylvania biologist, Dan Janzen. The remaining quarter of dry forest will become a protected zone, meaning that owners in this area cannot use the land for nonpark purposes or sell it. In other words, the land has to be converted then into the park system. About $4 million still is required to buy the remainder of the land. The debt swap will make it considerably easier for Professor Janzen and environmental organizations to raise this amount.

Now, with that brief explanation, I should also say that despite the appealing nature of these plans, there are two large categories of arguments that one hears against them.

The first is a moral argument—that debt-for-nature exploits the debt crisis rather than solves it. The fundamental argument boils down to a bottom-line conviction that Latin American governments cannot pay the debt, should not pay the debt and will not pay it. From this perspective, the debt-for-development idea appears to be largely a distraction. It condones rather than decries the debt. It settles for too little, and it turns humanitarian groups and environmentalists into bedfellows with commercial bankers.

A second set of anti-swap arguments are more technical. These have to do with a complex body of banking regulations and national laws—that is, how to isolate small pieces of debt, who owns and has responsibility for what, the inflation risks of foreign bonds, public versus private debt, tax breaks for banks, overhead for U.S. nonprofits, and so on. My own sense is that these technical obstacles are not insurmountable. On the other hand, the sheer complexity of working out these swaps may well set practical limits on the amount of debt that can actually be converted.

In many ways, I wish I could conclude my testimony with a dramatic plea for debt-for-nature swaps. I wish it were as simple as that, but unfortunately it is not.

That is because—to take the Costa Rican case—it is the nonswapped 99.99 percent of the debt that we have to worry about and the land outside the parks. As to parks and environmentalism, Costa Rica has always been a model of what to do embedded in another model of what not to do. We are dealing with incredible ironies here, wonderful parks and at the same time one of the highest deforestation rates in Latin America. So, again, it is a classic irony that one faces in Costa Rica where something extraordinarily good is happening within something else that is much more complicated and less positive.

In Costa Rica, the swap mechanism is moving beyond the parks, and it will significantly help nongovernmental groups engage more aggressively with their nation's problems. That is a constructive step.

But the heart of the matter is this. Central America probably has yet to feel the full force of the combined economic and environmental debt crisis that is brewing. It is the environmental debt on top of the economic debt. To address that, we have to do more than invent clever ways to finance worthwhile environmental activities. Working with Central Americans, we have to solve the debt crisis, the whole debt crisis.

Thank you.

[The prepared statement of Mr. Annis appears in the appendix.]

Senator SANFORD. Well, thank you.

I certainly agree that we have to solve the whole debt crisis, but it seems to me that even if this is a small part of it, it is a very constructive, beneficial part of it. So, I commend you for your leadership in thinking about it.

Explain just a little more about how that secondary bond works? Who issues the bond and who owns it?

Mr. ANNIS. The secondary bond. A country's central bank will issue nature bonds in response to the external purchase of debt. These bonds can be converted into local currency over time within the country. The bonds can be contributed to, say, nongovernmental organizations within the country, who can redeem them over time. These then become a source of revenue that the groups can draw upon—in the Ecuadoran case, over 9 years. These bonds become the property of the local group, and then they draw upon them.

Senator SANFORD. It doesn't involve an additional investor.

Mr. ANNIS. No. The investment is at the U.S. end in the sense that U.S. groups raise money which is then contributed into this bond mechanism.

Senator SANFORD. Well, we will come back to that and other things.

Mr. ANNIS. Thank you.

Senator SANFORD. If I may call on now Mr. Arensberg.

STATEMENT OF WALTER ARENSBERG, DIRECTOR OF THE ENVIRONMENTAL PLANNING AND MANAGEMENT PROGRAM, INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT, WASHINGTON, DC

Mr. **Arensberg**. Mr. Chairman, I am very pleased to have been asked by your subcommittee to testify as to the institutional capacity of Central American countries to achieve environmentally sustainable development. I must add, however, that having heard most of the testimony this morning, there are many people probably far more involved in this area than I who have given you good advice already.

I am the Director of the Environmental Planning and Management Program of the International Institute for Environment and Development (IIED), a center of the World Resources Institute (WRI). Our organization is specifically interested in the development question and the environmental underpinnings of development. We are field oriented and actively involved in helping both public and private groups in developing countries build their institutional capacity to deal with these issues.

We have fortunately been able to do that with a great deal of help from USAID through a cooperative agreement that allows us to work on environmental profiles and resource assessments, such as the one that Jeffrey Leonard helped us prepare for Central America and which he described to you this morning. In addition we are working on questions of sustainable agriculture and on supporting nongovernmental organizations overseas.

We are also about to complete a study with Harvard University's Energy and Environmental Policy Center which specifically analyzes the institutional response of Central American countries to environmental problems. That study is not yet finished, but should be at least in a good draft form—within the next 6 weeks. We would be glad to make it available to your subcommittee.

Senator **Sanford**. Thank you.

Mr. **Arensberg**. My remarks are based on the preliminary findings of that work, and I would like first to make some observations about governmental institutions and then about nongovernmental organizations.

Each of the Central American countries has established institutional responses to environmental problems that are consonant with their own particular needs and requirements. There is no question that governments are increasingly aware of critical environmental issues. But the variations among the governments' responses to those issues suggests that they are still looking for appropriate way to deal with them.

In the EEPC study, we have found a wide range of institutional arrangements for dealing with natural resource management and the environment. Interministerial commissions have been formed in some countries; existing ministries have been given new responsibilities in others; and sometimes entirely new institutions have been created.

For example, in 1981 Costa Rica created the National System of Environmental Protection and Improvement, SINOPROMA, with a board composed of seven ministers, two presidents of autonomous institutions, a national community development director, and one representative each from the private sector and an environmental organization. Although this approach draws together the various agencies and individuals whose responsibilities touch on the management of natural resources, the group is still searching for specific guidelines or policies to integrate all these activities. Without such integrated efforts, we can expect an increase in the duplication of mandates among several organizations.

One example of such duplication is in water resources management which comes under seven different institutions with overlapping functions. Four carry out administrative tasks; five support research; and three are doing special studies. There are even conflicts of interest between at least two institutions that regulate water for irrigation uses and for hydroelectric purposes.

But Costa Rica is not unique when it comes to the need for clear lines of responsibility and inter-agency coordination. Guatemala, for example, assigns natural resource administration to the ministries of interior, to agriculture and animal husbandry, health, public works and transportation, mines and energy. Planning work in this area is also done by a wide variety of very specific sectoral groups, as well as the national planning council. A lack of mechanisms for efficient collaboration results in the dispersion of efforts and the lack of coordination among activities. In Guatemala a new national commission on the environment was created which is attempting to wrestle with this problem and pull it into a more coherent approach to the issues.

I think you find in some cases also that the legal structures for addressing environmental issues are also dispersed. You have laws relating to specific institutions in the case of Honduras, say, for regulating industries in rural areas, as well as separate laws for regulating industrial health questions in municipal areas. There is no unifying legislative framework in which all this has been set up although, once again, in the case of Honduras, there is an effort now under way to bring about some integration of these laws.

Honduras also presents another example of one of the central problems to be found in the region. The Ministry of Natural Resources indeed does, have the mandate to protect, conserve and restore the environment in Honduras, but its budgetary support for personnel to get out in the field and actually carry out its mandate is lacking. As a result, you will find in many cases that good intentions are left on paper and never really become reality.

In sum, Central American governments indeed, are trying to improve natural resource management, but critical problems exist with inadequate policy guidelines and criteria, competing and overlapping institutional mandates, lack of basic data for decision making, and lack of budgetary support, personnel and training.

I would like to turn now briefly to NGO's. Some of the most effective efforts in sustainable development may be carried out by nongovernmental organizations, and their numbers have grown considerably in Central America in the past 10 years. One example of this is that in 1974 when the International Union for the Conservation of Nature and Natural Resources called a meeting of Central American environmentalists, 46 people attended. Last year at a similar meeting held in Guatemala in October, 160 people came, only 4 of whom had attended the first IUCN conference. Forty nongovernmental organizations were represented, and a new network of regional NGO's for sustainable development called REDES had been launched only 6 months earlier. This is a major advance in the NGO field.

Now, what are the forces that have contributed to the creation of so many nongovernmental organizations and what are the capacities and the limitations of these private institutions?

Nongovernmental organizations are created by groups of individuals who share a common interest and who feel, as a result of their association, that they can contribute to improving their society. I think in the Central American countries many of these citizens organizations have been created in response to the critical confluence of severe economic problems and the rapid consumption of the natural resource base. Many of the NGO's that have been formed also have set their program priorities in areas that are complementary to existing governmental institutions.

I hope, Mr. Chairman, if I am going on too long you will just stop.

Senator **Sanford**. No. Go right ahead.

Mr. **Arensberg**. Thank you.

Senator **Sanford**. But we will put your full testimony in the record, and you can touch on whatever highlights you want to.

Mr. **Arensberg**. All right, fine.

I think many of these nongovernmental organizations also receive financial and technical assistance from international agencies much as their colleagues in government do.

And I think the main point with NGO's is that they are independent institutions which can operate with a great deal of flexibility, increased creativity and relative autonomy from government organizations. And most important of all, they are able to work with close contact with the citizens to whom the policies and assistance are directed.

However, there are risks of relying too heavily on NGO's. They have some inherent limitations, and as one expert, Gerardo Budowski, said about that IUCN meeting, "we should not be overly enthusiastic about 'the NGO phenomenon'; thirty of the organizations of NGO's that existed in 1974 during that first meeting, are now defunct."

Establishment of a stable nonprofit organization takes many years, and to be effective and survive takes and extensive and diverse national support system for fund raising, for marketing, et cetera and a staff with a lot of stamina, determination and a deep commitment to their work.

Institutional strengthening is a means of supporting both government agencies and NGOs as they manage sustainable development in their countries. I think you will find with NGO's in particular that we have questions not only of improving their programs, but also of helping them with their internal management and administration, financing, fund raising, and laying out strategies for how they can best relate to certain program areas.

We also have the question of helping with training. I think the kind of training offered should not pull individuals out of these organizations, away from their homes for long periods of time. Short-term courses and in-country workshops may be the best way to improve skills without disrupting the organizations and the lives of key individuals. I think this issue is related to government institutions as well as NGO's.

Education and training opportunities have to be relevant and not copies of U.S. programs. This means developing appropriate textbooks and courses in the Central American context. Training and educational assistance shouldn't necessarily concentrate on scholarships to U.S. institutions either, although it might be nice to have increased access for a wider social group in Central America, not just the elite who usually know how to get those scholarships.

I think we also need to institute training opportunities within the existing institutions in Central America. The universities, the special institutes, and the extension programs.

We have to deal with a multi-sectoral approach that combines development and the environment. It is very clear that strict conservation alone won't do the job.

We also have to deal with multi-disciplinary curriculum options so that the forester who may be very well trained in the technical aspects of his job also has an understanding of the social, community development, or anthropological questions that may, indeed, affect his overall success.

In sum, to help these institutions carry out sustainable development policies, certain fundamental criteria should be observed. First, the critical relationship between environment and development, between economic growth and sound natural resource management must be clearly elucidated in our own development assistance policies and programs so that we have a firm basis for dialogue with the government agencies and with the NGO's with whom we are dealing in Central America.

Second, we should seek to encourage and support the sound evolution of natural resource management institutions within Central American countries. With regard to this, it seems to me that for both governmental agencies, as well as NGO's, this will mean being responsive to the objectives and initiatives taken by those institutions in the regions rather than by agendas exclusively set here in Washington. It will also mean maintaining flexible approaches that neither misdirect, nor overburden, nor misunderstand the behavior and requirements of the institutions with which we are collaborating.

Third, our development assistance programs need to develop real staying power. And I think this is probably one of the more important points we are trying to make. Strengthening institutions be they public, private, voluntary, not-for-profit, big or little takes time, time for those institutions and the people running them to define where they are going, and time to nurture the human, technical and financial resources they need to get there. Our own commitment of people and resources must recognize this and not demand instant and easily credited results.

I think the people of Central America, Mr. Chairman, are working to respond to the needs of their countries and to the environmental questions. Properly fashioned, our own programs of support can do a lot to help them on their way.

Thank you very much.

[The prepared statement of Mr. Arensberg appears in the appendix.]

Senator **Sanford**. Thank you very much.

Now, is the International Institute for Environment and Development coordinating NGO's? Who is bringing together this network of NGO's? Who got together the conference?

Mr. **Arensberg**. The conference at which REDES was formed originally was called in Nicaragua by a group of nongovernmental organizations engaged in environment and development. The International Institute for Environment and Development merely extended a helping hand at a time that the seven organizations that initially formed REDES came together. So, we cannot claim to have either set it up or be coordinating it. We are partners in that process.

Senator **Sanford**. Now, are most of the NGO's Central American organizations or United States or both?

Mr. **Arensberg**. Within the REDES group you mean?

Senator **Sanford**. Yes.

Mr. **Arensberg**. Exclusively Central American.

Senator **Sanford**. Well, thank you. We may come back.

There is a peculiar rule in the Senate—not peculiar. It's an ordinary rule in the Senate. All of them are peculiar.

[Laughter.]

Senator **Sanford**. That you have to have unanimous consent to have committee meetings while there is a session. And someone has failed to give consent, not to this particular subcommittee, but doubtless to some larger committee that they don't want meeting after after noon. So, under our rules we have to stop this committee meeting at noon, not that we wouldn't have had to stop pretty soon thereafter anyhow.

So, we may want to ask you a couple of other questions just to round out the record, and we will do that in writing if the staff thinks that is appropriate.

Let me ask you one other thing, Mr. Barborak. You talked about needing to do things for all seven nations as we concerned ourselves with development.

Now, I have observed that Belize doesn't really want to be a part of Central America. It would rather be a part of the Caribbean, and I suppose that has something to do with the longstanding dispute with the neighboring country. And Panama has not been particularly anxious to be included in Central America, either. In any event, the five other countries seem to see themselves as a unit and tend not to involve themselves with the concerns of Panama or to include Panama. What are your comments on that?

Professor **Barborak**. Well, first of all, there are historical reasons why Panama, because of its recent independence, and Belize, being a commonwealth nation, do not have strong commercial ties or historical ties with the other five nations. But I think in the environmental field with the creation of REDES, which this environmental confederation includes representatives from all seven countries, and they realize that both their economies and their environments are closely tied together.

Let's not forget that because of the massive influx of Spanish-speaking refugees into Belize, about half the people there now speak Spanish. And hopefully if the differences between Belize and Guatemala are resolved and commercial trade with the rest of Central America is increased, I think that on the commercial front, on the political front, as on the environmental front, we can look for more integration of Belize with the Central American nations and also with Mexico.

As regards Panama, I'll just give one example of the need for coordination. There is a bilateral peace park on the Panama/Costa Rica border, and the Costa Rican portion is now managed and much of the private lands have been bought with the help from a lot of different conservation organizations. Unfortunately, on the Panamanian side where a USAID project was scheduled to provide a large level of support for establishment and management of the Panamanian part of the park with the aid cut off now, that is probably not going to occur in the near future. So, this is an example where efforts in one country, Costa Rica, to save part of a large wild land are affected by the cut-off in aid to Panama.

And in general, there is a good deal of commercial trade with Panama.

Many of the species are joint species. They don't respect international borders. I again would like to point out that many of these species are migratory and our own domestic conservation efforts depend on attacking the problems in Central America in a joint fashion.

Senator SANFORD. Yes. Our canaries won't come back one year if we are not careful.

Extend that though into North America. What is your comment on Mexico?

Professor BARBORAK. Well, southern Mexico has a lot of environmental similarity with northern Central America, shared environments. And the levels of devastation in southern Mexico are also severe. There are well over 100,000 Guatemalan refugees that are doing there darnedest to eliminate the last vestiges of Mexico's tropical forest. So, this is another example of how the refugees are impacting environmental matters and what is going on in one country affects another.

So, obviously, any regional solution should also incorporate southern Mexico and in the meeting of Central American conservation groups that was mentioned, representatives from all the Mexican states that border Belize and Guatemala were also invited. So, I would say that on the conservation front, we are trying to think of these interregional and bioregional considerations as much as possible.

Senator SANFORD. In our attempt to bring about what we call in shorthand a mini Marshall Plan, that you are aware of, we concentrated on the five countries as a practical matter. Do you think that is practical? We thought maybe if we went to the whole Caribbean or the whole region or even Latin America as previous programs did, that we would again diffuse our efforts. We felt the need to build from a core. This was the rationale behind picking the five to concentrate on.

Professor BARBORAK. I would agree that that is the right approach, but I would argue that particularly in the area of natural resources conservation, that might be one area where an opening to including the countries to the south, Panama at least, and Belize to the north be considered pretty much as being on the cutting edge of thinking of Central America as a seven nation geographic region and not a region separated for old political or historical reasons.

Senator **Sanford**. Of course, a great many of these environmental concerns come right on up not just to Mexico, not only to the United States, but to Canada when you consider the flyways of that particular part of the environment.

Professor **Barborak**. Exactly. And I think a good indication of what can be done is that USAID and Canadian AID officials recently sat down to coordinate their environmental programs in the Caribbean basin, and more attempts like this should be carried out to make sure that both countries are adequately addressing these problems in a coordinated fashion.

Senator **Sanford**. Well, I wanted to talk a little bit more about the peace parks and a little bit more about the bonds and other concepts, but I'm afraid that we have run out of time under the rule.

Let me thank you so much for your careful preparation and for your taking the time to come. We look forward to continuing this discussion over the coming months. Thank you very much.

We stand adjourned.

[Whereupon, at 11:58 a.m., the subcommittee was adjourned, to reconvene subject to the call of the Chair.]

APPENDIX

Testimony before the Senate Foreign Relations Subcommittee
on International Economic Policy, Trade, Oceans and
the Environment
April 13, 1988

Duane Acker, Assistant to the
Administrator for Food and Agriculture, U.S. Agency
for International Development

Sustainable Development

Thank you for the opportunity to testify on this important issue. Achieving and sustaining economic and human growth in developing countries is ~~one of the~~ world's most important tasks.

The focus of this hearing is environmentally sustainable development. This suggests emphasis on the biological and physical aspects of the environment -- the air, surface and ground water, soil, plant and animal materials, and other of the natural resourc~~es --~~ which affect human, plant, and animal life.

The goal is development, achieved in such a way and with the consequences that the environment is maintained at a level or enhanced to the level that will allow the development to persist.

During the development process in some countries or regions, the status of the environment -- the natural resource base and other features -- has diminished to levels that will not permit the development that has been achieved to be sustained. In other cases, the natural resource base may be so limited or fragile that, with traditional technology and methodology, one could not expect to achieve significant sustainable development.

AGENCY POLICY

The U.S. Agency for International Development has demonstrated, by both behavior and policy, sensitivity to environmental issues. An Agency Policy Paper: Environment and Natural Resources, prepared in March, 1988, not only outlines current policy, but also cites related legislation and a succession of Agency policy, strategy and guidance documents dating from 1976.

An Agency special Report on the Environment (subtitle: Managing Natural Resources for Sustainable Development) dated Fall, 1987, describes a large number of Agency projects and programs directed to assessing, maintaining, and enhancing the environment and natural resources in developing countries, including efforts in environmental law, policy development and change, biological diversity, environmental health and safety, coastal zones, agro-forestry, and private sector involvement.

We have also been helped by the many world leaders, organizations, and publications that have brought needed attention to the critical issue of development sustainability. Among these are the World Environment Commission and its report, and many U.S. environmental, natural resources and private voluntary organizations.

We also acknowledge the organizations and working groups which have focused on the specifics of sustainability achievement, who have identified key ingredients in the development process and the settings, and who have helped define or list specific characteristics of component areas, such as sustainable human settlement or sustainable agriculture.

Our Agency has been especially helped by the work of the Board for International Food and Agriculture, our Science and Technology Research Advisory Committee, a special task force put together by the international agricultural research centers, and the Committe on Agricultural Sustainability for Developing Countries, which is comprised of U.S. natural resources and private voluntary organizations.

The Agency demonstrates its concern and carries out its responsibilities for the environment and natural resources in two ways. One is in efforts directed to the natural resources themselves --- reforestation, inventorying soil resources, preservation of biologically diverse entities, improving water quality in both urban and rural areas, providing technical or policy assistance on environmental issues, training of natural resource management personnel, and watershed management. A.I.D. has committed nearly $700 million of Development Assistance Funds to such efforts during the past four years. When Economic Support Funds are included, the figure is more than $1.5 billion.

The second way the Agency expresses its concern and carries out its responsibilities is in carefully considering the impact on the environment of projects which may focus on food production, job creation, institution building or other specific area. This includes, for each project, initial environmental examination, and, where appropriate, detailed assessments or environmental impact statements.

AGENCY PROJECTS AND PROGRAMS

Some specific project examples will help illustrate A.I.D.'s activities directed to helping achieve environmentally sustainable development.

- In Thailand, an A.I.D. project is designed to strengthen Thai capacity to manage natural resources vital to the economy such as for fish production.

- A Forest Land Use Planning project in Niger has demonstrated that appropriate management of natural forests in semi-arid regions can be both economically and ecologically viable, achieving sustained yields of wood, forage, and income. Other donors are adopting the Niger approach, and A.I.D. is working to replicate it in other countries.

- In A.I.D.'s Agro-Forestry Outreach Program in Haiti, millions of trees have been planted on hillsides by small farmers, with PVO assistance. These trees provide sustainable income while reducing soil erosion, thereby enhancing the sustainability of hillside agriculture.

- In Senegal, an Agency project is developing a plan for improved management of small watershed areas, the purpose being to sustain the productivity of these areas over time.

- The Juba River Valley Project in Somalia provides information needed for environmentally sound seasonal irrigation. The Shebella River project also in Somalia, is financing rehabilitation of degraded watersheds and irrigation systems so that needed levels of food production may persist.

A.I.D.'s energy activities also contribute to environmentally sustainable development through helping developing countries increase energy efficiency.

- Our Office of Energy offers assistance to all interested A.I.D. countries in their efforts to increase energy efficiency in utility systems, industrial processes, buildings, and transportation. A.I.D.'s global energy training project has provided formal courses on energy conservation and demand management for 138 participants from 31 countries.

Land-use planning is an important component of A.I.D.'s environmental program.

- The Sahel Regional Planning, Management, and Research project, covering eight Sahelian states, finances research and analysis necessary for long-term planning in water resources development, crop production, and livestock and fish production.

- A.I.D. supports environmentally sound pest management through a number of projects, both centrally and regionally funded. A centrally funded Integrated Pest Management project provides technical assistance and training to developing countries and their personnel.

Before joining the Agency on a formal basis and since, I have personally observed many A.I.D.-financed projects. Most clearly demonstrated significant sensitivity to environmental issues, while achieving or allowing for increased food productivity and income. They included:

- A high-intensity farming demonstration near the Central Luzon State University campus north of Manila, with broilers in cages above rice paddies that doubled as fish ponds, and tomatoes raised on the pond dikes. The major input was a high quality, mixed ration for the birds; the output was poultry meat, rice, fish and tomatoes, and it was large. Nitrogen and other nutrients came in via the feed protein, were cycled through the birds to the pond, and from the pond water to the rice, fish and the tomatoes.

- Minimum tillage on terraced hillsides in Swaziland. The government had decreed terracing and contouring on hillsides. The evident motivation for minimum tillage was the saving of tillage cost and labor for the farmer, a mother of five whose husband worked in a distant city. But the residue from the previous crop also caught more of the rainfall, it soaked in, there was less erosion and, because of the mulch effect, there were fewer weeds.

- Laboratories and greenhouses at Colorado State University where rice varieties tolerant to acid soils are developed. By adapting the crop to the soil's characteristics, deposits of limestone normally needed to neutralize the soil can be preserved for use elsewhere.

My colleagues have described others:

- In the upper reaches of the Amazon in Peru, timber is a major marketable resource, but there are population and economic pressures to replace hillside timber with food crops. A.I.D. has helped establish a pattern of "long-term strip cropping." Strips of trees are harvested, the land used for food crops for several years, then replanted to trees, and alternate strips of trees are harvested. It works!

- A research project involving the University of Minnesota and an African PVO, has established that Neem, a unique tree that grows in India and Africa, yields an extract that is effective as a pesticide against 131 species of insects, 45 of which are major agricultural pests. And it is non-toxic to man. The project also includes research on extraction, efficacy, and farmer acceptance of the material.

- A.I.D., in collaboration with other donors and International Research Centers is supporting an alley-cropping research network in 13 African countries. Alley-cropping uses leguminous woody perennials in rows, between which annual food crops are grown. The trees temper the sun's rays on the food crop, fix atmospheric nitrogen, and provide forage and fuel. More organic matter is produced, the systems' total yield of food crops, forage and fuelwood is higher, and agriculture can be sustained. Through the network, host country and project-financed scientists share new knowledge.

These projects and others cause elucidation of several principles which should guide us in our future endeavors to achieve environmentally sustainable development.

1. In many developing countries, the natural resources, especially soil, are both fragile and limited. Even where vegetation may appear abundant, soils are often lacking in key nutrients, many are highly acid, and water is limited in some seasons.

2. Population pressures on the resources are intense and will increase. Probably nine of ten births in the next two decades will be in the developing countries. To both increase the income of the current population base and to generate income for the expanded population will cause very intense pressure on the natural resources.

3. Highly productive natural resources must be effectively used. If high quality, well-drained land in an irrigated valley can produce large volumes of food without negative environmental impact, employing it fully and wisely for food production will reduce the pressure on more fragile land, or on similar land that may now support a tropical forest with its great diversity of genetic materials.

If catfish production in a pond can be doubled or tripled economically by improved rations or other management change and without negative environmental impact, to do so diminishes need to dedicate other land to ponds.

4. Sustainable development is not necessarily low-input or low-technology. Sustainable agriculture is an example. Input of technology (rice lines tolerant to acid soils), management skill (choosing species for alley cropping) or labor may be high.

5. Impact on the environment and natural resources is determined largely by the person that controls the landscape. For a nature preserve or a forest it is the owner or manager. For fish or prawn-producing ponds or estuaries, it is the producer. For rangeland, it is the herder. For land which produce flowers, pineapple, rubber, corn, rice or poultry, it is the farmer. They make the daily environmental decisions.

As in the U.S., fishermen love the water, timber producers love the timberland, crop farmers love the soil. And they'll fight to protect it, _if_ they fully understand the degradation risks and _if_ there is available technology or practices _they_ feel they are able to use. That means the people who work with and influence these producers are key people in environmentally sustainable development.

The same is true _within_ a development agency or program. Those who know best prudent resource use, degradation risks, resource management, _and_ the people who manage the landscape must work together, as a unit, to have most positive impact.

6. Sustainable human settlement is central to sustainable development. The human is the target. To persist in a geographic area, people need food and water, fuelwood for cooking and heat, and a safe environment. They need roads to get their produce to market, to obtain their inputs, and to interact socially; they need jobs for income; they need education for their children; and they need social and cultural opportunities to nourish their intellect.

7. Developing country government policies are critical to sustainable development. Incentives, investments, financing of education, and guidance by the governments have major impact on the behavior of those who manage the landscape.

8. The biological diversity that exists in developing countries is exceedingly important to the U.S. To illustrate: Essentially all the genetic resistance to disease that is carried by grain sorghum hybrids produced on the U.S. Great Plains has come during the past 20 years from sorghum materials in India, Kenya, Sudan and adjacent countries. And, by the way,much of it has come to the U.S. via a collaborative research project financed by A.I.D.

MULTILATERAL DEVELOPMENT BANKS

In conformance with 1986 legislation, A.I.D. participates with the Departments of Treasury and State in a working group that reviews environmental aspects of projects financed by the MDBs. A.I.D. also monitors selected MDB projects that are judged to carry environmental risks. Projects are identified early in the development cycle, before approval by the bank executive board, and are reviewed by appropriate A.I.D. technical and mission staff. The environmental concerns are then reviewed with Bank staff and with the U.S. Executive Director's office.

A.I.D. also works with other assistance and environmental organizations, such as the Organization for Economic Cooperation and Development (OECD), especially its Development Assistance and Environment Committees; United Nations Development Program (UNDP); United Nations Environment

Program (UNEP); Food and Agricultural Organization (FAO); and Committee of International Development Institutions on the Environment (CIDIE).

The Report of the World Commission on Environment and Development

The report, which proposed environmental strategies for achieving sustainable development to the Year 2000 and beyond, has many positive points and serves to increase worldwide awareness of environmental and developmental problems. A.I.D.'s position is that of the U.S., presented to the U.N. General Assembly. The U.S. position paper says, in part, "major positive themes of the report include, among others, recognition of the need for and beneficial effects of economic growth in developing countries; emphasis on factoring environmental considerations in all sectors and into economic decision-making at local, national, and international levels; and recognition of the close linkages between poverty, population, and environmental degradation."

The report serves an important function in calling attention to the issue of environmentally sustainable development. The report's expression that concern for the environment should be incorporated in all sectors is consistent with and supports A.I.D.'s effort to integrate concern for the environment into all its development assistance activities.

CONCLUSION

It is clear that sustained economic development in developing countries depends heavily on the prudent and efficient use of the natural resources, on the maintenance of the natural resource base and, in some instances, on the enhancement of the natural resource base.

The focus of this hearing on environmentally sustainable development is appropriate. It should contribute to and support efforts of A.I.D., other donors, contractors and agencies to carry out their development work with sensitivity to maintenance and enhancement of the environment and the natural resources.

STATEMENT BY

DAVID R. MALPASS
DEPUTY ASSISTANT SECRETARY
FOR DEVELOPING NATIONS
DEPARTMENT OF THE TREASURY
BEFORE THE
SUBCOMMITTEE ON INTERNATIONAL
ECONOMIC POLICY, TRADE, OCEANS AND
THE ENVIRONMENT
COMMITTEE ON FOREIGN RELATIONS
UNITED STATES SENATE
APRIL 13, 1988

Mr. Chairman:

I am pleased to participate in these hearings on foreign assistance and the need for environmentally sustainable development programs. I would like to focus today on what we have done to implement the Congressional mandate to promote environmentally sustainable economic growth and improved management of natural resources. This mandate has been clear and strong and it has been a major theme in our management of U.S. participation in all of the multilateral development banks.

Unfortunately, the adverse effects of unwise and unsustainable development programs and projects are only too evident in all parts of the developing world. Examples include desertification in Africa and South Asia and destruction of tropical forests in Latin America, in Central Africa and in Asia. There have also been serious problems with loss of wetlands as well as atmospheric pollution and pollution of waterways. In some cases, development is threatening the survival of indigenous peoples and their culture and causing extensive damage to wildlife, particularly to endangered species that can never be replaced.

There is be very little disagreement on the urgent need to address these issues. We share the goals that have been outlined by Congress and members of the environmental community. Our policy in the multilateral development banks has been to seek to mitigate or eliminate such adverse effects in development projects and programs and to support national and regional programs to improve environmental management. This has meant the structuring of programs that encourage growth and reduce poverty while still protecting and preserving the natural resource base.

The first Congressional mandate for environmental action in the multilateral development banks was included in the Continuing Resolution Act for 1987, Public Law 99-591. This legislation provided that the Secretary of the Treasury should instruct the U.S. Executive Directors in the Banks to promote a number of very specific and detailed reforms. These reforms included:

- addition of professionally-trained staff in the Banks.
- development of plans for systematic and thorough environmental review of projects.
- creation of line units to carry out such reviews.
- establishment of multidisciplinary planning processes.
- development of plans for rehabilitation and management of ecological resources.
- involvement of health and environmental ministers and non-governmental organizations in the project preparation cycle.
- increase in the proportion of environmentally-beneficial lending.

A report detailing progress in these areas was submitted to the Congress in January, 1988. I will return in a few minutes to the subject matter of that report and provide some of the details of the progress that is being made.

The second Congressional mandate on environmental reforms was included in the Continuing Resolution for FY 1988, Public Law 100-202. This legislation restated many of the reform objectives outlined in the previous year's Continuing Resolution and made them a part of the permanent authorization legislation. It also provided for a number of other initiatives including:

- an analysis of debt/conservation swaps.
- discussions with other donors regarding personnel and financial support for environmental programs in the regional development banks.
- enhancement of the early-warning system for identifying problematic loans.
- report on a comprehensive strategy to address natural resource problems.
- discussions with other executive directors in the banks regarding integrated pest management.
- promotion of requirement for IMF to conduct an analaysis of the impact of adjustment policies and conditionality on environment, public health, natural resources and indigenous peoples.

This legislation took effect in December, 1987. We have already begun to implement some of these initiatives but action still remains to be taken in other cases.

It is clear from this brief summary that a great deal of legislation is in place. I want to assure you that we are making a conscientious effort to implement it. In fact, I believe we should make implementation our primary objective and not seek the passage of new law on this subject.

Within Treasury, we are working to improve our oversight of environmental issues in the multilateral development banks. During 1987, we abstained on six loans, citing concerns about adverse environmental effects. These loans included agricultural rehabilitation in the Sudan, electric power in Peru, a paper mill in Nepal, an abattoir in Botswana, livestock development in Benin, and agroforestry and livestock development in Mali. In February of this year, we abstained on a loan to Burkino Faso for a road and water project because of serious environmental issues.

We are continuing close coordination with State and AID and with environmental groups in an effort to improve the early warning system for problematic projects. We plan to take a more active role in international meetings on environmental issues, particularly those that involve projects and programs funded by the multilateral development banks.

We have had particularly strong support from a number of non-governmental organizations -- the Sierra Club, Natural Resources Defense Council, Environmental Defense Fund and others -- in gathering information and developing approaches to increase the effectiveness of our efforts. These organizations have assisted in the preparation of our position on loans for cattle production in open-range savannas of sub-Saharan Africa and on standards for evalating projects that may adversely affect moist tropical forests. They have participated in the early warning system established by AID to identify projects that may adversely affect the environment. They have worked closely with us in analyzing problems associated with specific loan proposals or with projects that are being implemented.

Let me turn now to the question of where we stand with regard to provisions of Public law 99-591.

Staffing and Training

During 1987, the World Bank carried out a major reorganization of its management and staff. One of its primary aims was to strengthen the Bank's capacity for addressing environmental issues. A central environmental department was established in the Policy, Planning and Research complex. Twenty-three positions have been authorized for the three divisions in the department. In addition, environmental units have been created in the technical departments of the Bank's four regional offices. Twenty-two positions have been authorized for these four units. The Bank has appointed a new director for the Environmental Department and a new advisor for scientific and environmental affairs. Both of these individuals appear to be well-qualified and capable, with extensive backgrounds in environmental matters. In addition to the 45 permanent staff positions, the Bank has indicated that it expects to use the equivalent of 18 man-years in consultant services for environmental issues during its current fiscal year.

The regional development banks need to hire more environmental specialists and to assign more staff to environmental issues. We have been encouraging them to do that. The Inter-American Development Bank has recently hired two senior environmentalists for positions at the Bank's headquarters and a third expert has been assigned to the Bank's field office in Brazil. The Asian Development Bank has had five staff members working on environmental issues; however, the chief of their environmental section has recently been recruited for the World Bank's Asian Environmental Unit and a well-qualified replacement is needed to fill that position. The African Development Bank has said that it will increase its environmental staff from two to four and that a well-qualified African candidate will be sought as Chief of the Unit. The unit is currently headed by a Norweigan official seconded to the Bank.

Significant progress has been made on training. In the World Bank, an environmental training program has been introduced for Bank staff. The program is designed to raise awareness of environmental issues in development, to convey new techniques, and to introduce the latest developments in the field. The integration of environmental and economic work and the importance of policy intervention is to be included in the curriculum of the Economic Development Institute.

The Inter-American Development Bank has initiated a series of seminars on environmental issues. The first of these seminars took place over a three-day period in December, 1987, with forty members of the Bank's technical staff participating. Similar seminars for other members of the staff are to be held later this year. A one-day seminar is also planned for the heads of the Bank's field offices in its borrowing countries. The African Bank has sponsored a one-day seminar on the economic valuation of environmental impacts and a two-day seminar on environmental planning in project development. A third seminar focusing on grazing issues, which have been problematic in some Bank projects, is to be scheduled for later this year.

Management Line Units

Three of the Banks have established line units to provide for a systematic and thorough review of projects affecting the environment and natural resources. As I indicated earlier, the World Bank has set up four regional units. The Asian Development Bank and the African Development Bank have established smaller units that need to be strenghened. The Inter-American Development Bank decided to create an inter-departmental Committee instead of a line unit. It reviews projects in both the preparation and implementation phases and is advised by a senior environmental specialist.

Involvement of Health and Environmental Ministers and Participation of non-Governmental Organizations

The management of the banks report that they have taken steps to emphasize the involvement of health and environmental ministries. The Asian Development Bank provides special briefing materials to its country programming teams on environmental and natural resource development projects. The environmental unit at the bank is also in contact with environmental agencies in borrowing countries regarding specific projects in the pipeline that may need assessment. The African Development Bank has issued instructions to staff for expanding consultations with health and environmental ministers.

Participation of non-governmental organizations is also being encouraged in all of the banks. In the World Bank, the focal point for relations with non-governmental organizations has been shifted from Public Affairs to Policy, Planning and Research. This shift has facilitated the exchange of views and discussions on substantive issues.

In May, 1987, the Inter-American Development Bank sponsored a conference on environmental issues in Latin America and the Caribbean. There was extensive participation by regional and non-regional NGO's. There was also very broad representation from public agencies throughout the region, responsible for environmental protection and natural resource conservation. The African Development Bank is making plans to hold a similar conference during the second half of this year.

The Asian Development Bank has completed a working paper on cooperation with non-governmental organizations. The paper was based on consultation with a number of those organizations. A final report is expected shortly. All of the banks are seeking to involve NGO's in borrowing countries more actively in the project cycle and to see that local community groups and other organizations are fully informed of project planning at an early stage of the cycle. In agriculture, this has involved wider contacts with farmers organizations, water user associations and women's groups.

Multidisciplinary Planning in Land Uses and Rehabilitation and Management of Ecological Resources

All of these banks have sought to incorporate new technologies, including remote sensing techniques, into efforts to encourage more effective land use planning. The World Bank has begun preparation of comprehensive environmental action plans in a number of selected countries. It is also preparing terms of reference for consultants to identify areas where multidisciplinary support can help improve project preparation.

The multilateral development banks are providing funds for national and international agricultural research programs and for science and technology programs that support research into eco-system management. The World Bank is working with Harvard University and the Institute for International Environment and Development to assess alternative approaches to natural resource management. Task forces have also been organized within the World Bank to address desertification, deforestation, industrial accident risk avoidance, protection of criticl eco-systems and mitigation of natural disasters in urban areas.

Other Aspects of Legislation

There are two specific legislative requirements from 1986 on which I would like to report on briefly. The creation of four environmental line units in the World Bank should lead to better review of on-going projects. The Inter-American Development Bank has issued new instructions to its field offices in borrowing countries emphasizing environmental and sociocultural issues during project supervision and monitoring visits. The Asian Development Bank and the African Development Bank both report that increased emphasis has been placed on environmental issues in monitoring and evaluating projects. None of the banks has created the position of an advisor to the President for environmental matters. The World Bank has, however, appointed a senior official as an advisor to the Vice-President for Policy Planning and Research.

As I indicated earlier, we have begun a number of initiatives as a result of the Continuing Resolution that was passed in December, 1987, Public Law 100-202.

We recently submitted to the Congress a report that had been requested on debt for nature swaps. In brief, this report recommends that the World Bank place additional emphasis on working with countries to establish priorities for conservation projects and on improving informational systems on species groups, critical ecosystems and major tropical wilderness areas. It also looks to the Bank to take a more active intermediary role in helping to arrange debt for nature swaps and to consider starting a pilot program in a country that has indicated that it is willing to establish one. An Internal Revenue Service ruling that encourages participation in such swaps was released last December.

I can also report that we have been in contact with other developed countries regarding the possibility of providing environmental experts to work in the regional development banks. Environmental experts from the United States, Norway, the Netherlands and Italy have already been seconded to the African Development Bank. Last month, we began consultations with fifteen other developed countries about improving that particular program and the possibility of seconding additional experts to the other regional development banks. Our executive directors in the Banks have been asked to talk with management about how this program might be expanded.

We have been holding regular meetings with representatives of other donor countries regarding improvements in the environmental performance of the multilateral development banks. These meetings have ranged from discussions in the Development Committee of the World Bank to more informal consultations and conversations about changes in policies and our positions on individual projects that may affect the environment. This week in Development Committee meetings, we are reviewing a number environmental issues in the World Bank. Next month we will participate in an OECD meeting in Paris seeking to promote the development of guidelines for decision-makers in evaluating environmental issues in the multilateral development banks.

We placed a particular emphasis on environmental issues at the annual meeting of the Inter-American Development Bank in Venezuela in March. We plan to continue to stress these issues at the annual meetings of the Asian Development Bank and the African Development Bank that will take place later this month and in June. All of these initiatives have been meant to involve the governments of other countries more effectively in our own efforts to improve environmental performance in the banks.

During the past year, we have worked closely with our colleagues at AID in implementing the early warning system for identifying problematic projects. We believe we can continue to enhance this system and become more influential in shaping the environmental aspects of individual loan proposals in the banks. Later in the year, we will collaborate with State and AID in analyzing more comprehensive strategies that can address natural resource problems through the multilateral development banks and in our bilateral aid program.

To sum up, Mr. Chairman, we have had a very extensive legislative mandate from Congress on environmental issues in the multilateral development banks. We have been fully engaged in implementing the provisions of that mandate. On some of the issues, particularly staffing, training and the involvement of non-governmental organizations, I believe we have been making substantial headway. In other areas, we will continue to press for further reforms.

I do not believe that we need additional legislation to assist us in seeking these reforms. I am optimistic that attitudes are changing -- both in the banks and in borrowing countries -- and that we will have continuing progress to report to the Congress as the year progresses.

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TESTIMONY BY

JAMES GUSTAVE SPETH, PRESIDENT

WORLD RESOURCES INSTITUTE

before the

Senate Foreign Relations
Subcommittee on International Economic
Policy, Trade, Oceans and the Environment

April 13, 1988

My name is Gus Speth and I am President of the World Resources Institute in Washington D.C. I am most appreciative of the Senator's invitation to testify today on environmentally sustainable development.

Looking at the world today, we see two great challenges that can galvanize the best energies of the American people:

- The challenge of world poverty, and the linked challenges of widespread disease and hunger; and
- The challenge of global environmental deterioration.

Both are serious and getting worse, especially in the Third World, and each is intimately connected to the other.

We are losing tropical forests at the rate of 80,000 square kilometers every year - that's sixty percent the size of North Carolina, or half the size of New England - and only one tree is replanted for every ten that are cut. In Africa, the ratio is 1 to 29! Soil loss has an adverse effect on agricultural production - especially worrisome in the Third World where food production often cannot keep up with population growth, and food imports represent a significant fraction of national budgets. In Guatemala, 40 percent of the productive capacity of the soil has been lost. In Haiti, there is little top soil left. Each year 6 million acres lose their productive capacity and are added to those already desertified. Each year as many acres of irrigated land become waterlogged and salinized as are brought under irrigation. Each year the rapidly growing populations press more relentlessly on the resource base. Each of these trends in resource degradation spells poverty for the people who depend on the land.

Last year, the World Commission on Environment and Development addressed the connections between environmental degradation and poverty in its fine report, Our Common Future. It persuasively documents how rapid the deterioration of the world's forests and farms, its seas and cities, and sets forth the strategies to assure our common future.

The key to that future is sustainable development, which WCED defines as the integration of environmental policies and development strategies in order to "meet the needs and aspirations of the present without compromising the ability to meet those of the future." The term "sustainable development" has already entered Washington jargon, and people use it in different ways. What's important to remember is that if economic development is not environmentally sustainable, it is not economically sustainable either.

We have an opportunity before us - a new decade in which the Congress will enact new debt and trade legislation, and a new foreign-asistance act. All must be driven by the concept of sustainable development. To begin with, there is some very good language in the House-passed version of the Foreign Assistance Bill (H.R. 3100, Section 307) that needs to be put into the Senate version. But that is not enough.

Tinkering with outmoded assumptions, policies, and institutions will not be sufficient to tackle the poverty and environmental degradation on the 1990s and beyond. We need a new vision of world partnership to take care of our common future, a new concept of burden-sharing to sustain our earth, its people, and its environment.

It is agreed that it's time once again to overhaul the Foreign Assistance Act. I propose that we start by renaming it the Sustainable Development Act.

The World Resources Institute, along with many others around the country, is working to reshape U.S. development policy foı the next decade, and we have prepared a set of recommendations that I want to submit for your consideration.

The highest priority of United States policy must be resource management for the rural poor. We propose that the United States help mount a second agriculture and forestry revolution to transform traditional farm systems, that we make a commitment to "low-impact" or "resource-poor" farming comparable to that made over the last generation in the Green Revolution. In the next two decades, major assistance will go to the men and women who practice subsistence farming in marginal lands, to provide credit and technical assistances and incentives to the poorest, to restore productivity to eroded lands. This means farming that combines the growing of food crops and trees. It means that USAID must multiply reforestation efforts to help close the gap between forest loss and forest replacement.

Second, it is time to develop a comprehensive energy program for the U.S. assistance effort. There is no aspect of economic development that does not require energy, and few forms of energy whose use does not have environmental effects. Yet up 'til now, AID's energy program has been totally inadequate to meet the need. To take pressure off the poor, most of whom depend on firewood, and to take the pressure off the forests, we propose a major initiative to provide greatly increased efficiency in the household, agricultural, and industrial uses of traditional fuels, buying time to develop modern renewable-energy technologies for use in both developed and developing countries.

And third, because most of the coming Third World population growth is going to be in cities that share the same public health and pollution problems of urban centers everywhere, we propose a substantial focus on the problems of sanitation and pollution control, especially the latter, where American technology has much to offer.

These strategies that will help us to achieve sustainable development are for the most part people intensive, rather than capital intensive. They require information, technical assistance, and training. While Third World governments must develop the policies, incentives, and infrastructures, much of the work must be done by local communities, non-governmental organizations and private enterprise.

The United States pursues many issues, objectives, and values in international relations. Like many other countries, we seek to promote U.S. political and economic interests around the globe. But there should always be a place in U.S. policy and in our actions where we act internationally at our most altruistic and farsighted - and where, in so doing, our government responds to deep-seated values of a caring and concerned people.

When the time comes for more specific proposals, we at the World Resources Institute will be happy to work with the Congress. We believe there is a new constituency out there, the environmental constituency, who will support the right development policies in the Third World. This globally awakened citizenry is the new American constituency for sustainable development.

U.S. POLICY IN THE 1990s:

INTERNATIONAL COOPERATION FOR ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

Policy Proposals from
The World Resources Institute
to the
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Cooperation for International Development

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J.W.B.

U.S. POLICY IN THE 1990s

INTERNATIONAL COOPERATION FOR ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

In the 1970s, critics of the U.S. environmental movement--critics in the United States as well as the Third World -- often called environmentalism "a luxury of the rich." Most poor countries thought they would have to choose between development and environmental protection, between jobs and the environment.

We now understand better. In fifteen short years, environmental protection has gone from being a luxury of the rich to being a requirement for the poor. Leaders of even the poorest countries -- countries with the most fragile lands, or the most problematical rainfall, or the most crowded urban barrios--understand full well that future development depends on the sustainability of the resource base. Today many, if not most, would agree with Tanzania's Julius Nyerere that "environmental concern and development have to be linked together if the latter is to be real and permanent." For their part, most environmentalists have reached a better understanding of the necessity for poor countries to achieve economic growth and provide a better life for their people.

Professional jargon commonly characterizes U.S. relations with Third World as "we" and "they," "haves" and "have nots." _We_ seem to have all the information, the cash and the know-how, and _they_ have all the problems. Such simplistic analysis will neither protect U.S. interests nor provide for Third World development. For the fact is that both the industrialized and developing world share some ominous problems:

- In agriculture, we are converting more and more prime farmland to other uses. We face such common problems as soil loss, aridity or water-logging and salinization, rising costs of inputs, and pollution from runoff. In a world with enough food to feed everyone, more people go to bed hungry and malnourished than ever before.
- In the woodlands, we are parties to rapid deforestation, reduction of fuel and lumber supplies, loss of soil fertility, destruction of habitat. By 1980, it is estimated that between 25 and 40 percent of all original tropical forests had been lost, with untold damage to fragile ecosystems and loss of species, the richest concentration of which is found in tropical forests.
- In energy, the world experiences diminishing supplies of both non-renewable and renewable fuels, and rising environmental and health costs. At the same time, we face a quintrupling of world energy demand and unbearable burdens on the atmosphere.
- In population, the earth will need to feed, educate and support another billion people before the end of the century, putting additional intense pressure on both urban and rural resources. Even for countries that

have developed policies to solve their population problems, there is still a resource problem of how to meet the needs of people already born.

In the 1990s industrialized and developing countries will have to face these problems together. On one earth, ever smaller even as it grows more stressed and more crowded, there is an inextricable connection between us and them, between the haves and the have-nots, between the problems of poverty and the problems of the environment. The times call for burden-sharing with the developing countries. The answers lie in the search for sustainable development, which Our Common Future, the report of the World Commission on Environment and Development, defines as the integration of environmental policies and development strategies in order to "meet the needs and aspirations of the present without compromising the ability to meet those of the future."[1]

I. DEVELOPMENT COSTS OF ENVIRONMENTAL DEGRADATION

The consequences of poor resource management manifest themselves differently in different countries. But whatever the variations, the impacts will eventually be measured in economic terms. For example, demand for household fuel constitutes a clear threat to economic development in many countries. It has denuded forests near rural villages and around the cities. With the loss of tree cover comes increased erosion and lower crop yields. Where dried dung is used in place of scarce fuelwood, the soil is robbed of natural replenishment. The resulting loss in soil fertility reduces harvests by an estimated 14 million tons of grain a year -- more than all food aid from all donors to all developing nations.[2]

Deforestation proceeds apace. Some 80,000 square kilometers, an area roughly four times the size of Massachusetts or 60 percent of North Carolina, are lost to non-forest uses each year. Another one and a half times as much is damaged. Of the 33 countries that are currently exporters of industrial wood products, 23 will probably become importers of forest products by the year 2000. Fuelwood shortages affect an estimated 1.5 billion people in 63 countries. Commercial lumbering, land clearing to make way for cattle farms, and peasant use of the forests for fuel and fodder all threaten the remaining natural forest, which in tropical climates is highly susceptible to damage from human activities. Each year runoff from 160 million hectares of degraded upland watersheds contributes to soil erosion, declines in agricultural productivity, downstream silting and flooding, and destruction of fishing grounds.

For some countries with mounting oil import bills, hydroelectricity is the most promising means of providing power for industrial and residential users, and often water for irrigation as well. But the environmental, health, and other costs of hydroelectric dams can be high. Accelerated siltation behind dams, due to deforestation and soil erosion, is the most expensive kind of environmental neglect. If a reservoir designed to function for 80 years silts up in 25, economic calculations of costs and benefits are thrown completely off. The loss of electric output alone runs into the billions of dollars. In the Dominican Republic, for example, the large Tavera Dam, completed in 1973, has already lost 40 percent of its dead storage capacity and 10-14 percent of active storage due to siltation. In India, terrible rates of deforestation in the Himalayan foothills have already reduced the estimated life of the Tehri Dam from 100 years to 30 or 40. In China, the Sanmenxia Dam silted up completely within four years of its completion.[3]

Nor is siltation the only cost. The Food and Agriculture Organization (FAO) estimates that 20 percent of irrigated lands are waterlogged or excessively saline, or both[4] which means additional costs in lowered agricultural productivity. Health costs for treating malaria and schistosomiasis often climb drastically after dam construction, because the mosquitos and snails that carry these diseases proliferate in the standing waters of irrigation canals. Egypt spends an estimated $560 million a year treating and preventing schistosomiasis. Harder to quantify, but nonetheless real, are losses associated with the dislocation of those whose lands are flooded out (often tribal people or extremely poor peasants) and with species extinction in submerged tropical forests.

Clean drinking water is also in short supply. Throughout the developing world, water polluted by sewage and industrial wastes causes disease and death. Eighty percent of childhood deaths is due to water-related disease. Only 50 percent of the people in developing countries have access to safe drinking water, and four out of five had no sanitary facilities -- not even a pit or bucket latrine -- in 1980. Once ground water is contaminated it can take decades, even centuries before natural processes eliminate the pollution. In a fundamental sense, health, too, is an environmental matter in developing countries.

The costs in human life, health care, and agricultural losses due to pesticides and pest resistance are also rising. Some 10,000 people die each year and 400,000 suffer acute effects from pesticide poisoning, while the number of pesticide-resistant species is growing (from 25 in 1974 to 432 in 1980).[5]

Soil loss everywhere has an important adverse effect on agricultural production, but it is especially worrisome in the Third World, where food production often cannot keep up with population growth and food imports can represent a significant fraction of national budgets. No part of the developing world has been spared. In Guatemala, 40 percent of the productive capacity of the land has been lost to erosion, and some areas of the country have been abandoned because agriculture is no longer economic. In Turkey, planners estimate that 75 percent of the land is affected, 54 percent severely so. In Africa, overgrazing, overfarming, and overcutting -- all pushed by rapidly growing populations -- have so reduced the productivity of the land that nearly a score of countries are prey to famine whenever the rains fail. In much of Haiti, there is no topsoil left at all.

Each year, 6 million hectares of drylands are added to the 1.3 billion hectares that have already been moderately or severely decertified. A 1984 FAO assessment predicted that, without conservation measures, the total area of rainfed cropland in the Third World will shrink by 18 percent (544 million hectares) by the end of the century because of soil erosion, salinization, depletion of nutrients and organic matter, pollution and deterioration of soil structure. Total loss of productivity would amount to 29 percent.[6] In the same period, another billion people will be added to the world's population, and more than 90% will be born in developing countries.

Environmental degradation and growing population together can undo the gains of national development, as is apparent when one looks at specific countries. Egypt, for instance, has already lost the struggle to meet the food needs of its rapidly growing population. Despite substantial gains in food production over the last 20 years, per capita production has declined. The amazing growth of Cairo (10 million residents, and still growing) and other urban areas, all of them along the fertile shores of the Nile River, encroaches steadily on farmland. New industries also take their share. Government policies that favor cotton and other commercial cash crops reduce the areas left for growing food. At the same time, desert sand from the west encroaches on fertile soils at several places along the Nile valley. Soil along the Nile itself is eroding at much faster rate than before the construction of the Aswan dam. Increased soil salinity, the result of poor irrigation practices, threatens most of the irrigated lands and reduces productivity further. The charge for all this against Egypt's development hopes is staggering: wheat and flour imports cost the government $1 billion in 1986.[7]

The Central American states undertook ambitious development programs in the 1960s and 1970s to raise their standard of living and bolster their economic independence. Though there were marked differences from country to country, they all embarked on development strategies based on agricultural exports and industrial development to achieve import substitution. Only a handful of industries have succeeded, and the debt undertaken in the process is today the single largest impediment to growth. The production of export crops -- principally coffee, bananas, sugar, cotton, and cattle -- was modernized with large investments in mechanization, pesticides and fertilizers. Throughout the region, farmers who rented or farmed small plots without title were divested of their farms to make room for the export crops. These crops accounted for one-half to two-thirds of export earnings in El Salvador, Honduras and Guatemala, but intensive monocultures have degraded the resource base, and the shift in land use meant a decline in food production. In the Costa Rican lowlands, for instance, small-scale agriculture virtually disappeared before the banana plantations in the 1960s, while corn production declined 87 percent in 6 years. In Nicaragua in the same years, it was cotton, whose huge sales to Japan made it the leading export.

Each of these crops had its environmental costs, but it is deforestation for cattle ranching that has caused the most destruction. From 1960 to 1980, Central America's forests declined from 60 percent to 40 percent of the territory -- with two-thirds of its cultivated land in livestock. Since 1963 the World Bank has lent funds for cattle ranching to every Central American country except El Salvador, and has provided more credit for livestock than for any other kind of agricultural activity. The Inter-American Development Bank (IDB) also recognized cattle production as "highly suited" to the region and a promising earner of much-needed foreign exchange. But the planners did not understand that the luxuriance of the tropical forests was deceptive, hiding nutrient-poor soils unsuited to cattle raising. The amount of land necessary to support one animal quickly rose from one hectare in the first years of production, to 5-7 hectares. After 10 years or less, cattlemen must move on to new forest lands to support their herds.

Today, the highest rate of deforestation in the hemisphere is found in Central America. Fuelwood is already in short supply, and some countries will be forced to import lumber in a few years. Dams and rivers silt up faster than expected as soil is carried off.

Central America's development strategy exacted a high price in debt for the state and land alienation and poverty for the poor. And the land, chief natural resource of the region, has been profligately spent without sustainable return. Far from fostering economic independence, the development strategy of the past generation has left the Central American states more dependent than ever on the United States and the rest of the industrialized world.[8]

The Poverty-Environment Connection

Our Common Future underlines the connection among poverty, international policy, and environmental degradation. The report emphasizes that "poverty itself pollutes the environment... Those who are poor and hungry will often destroy their immediate environment in order to survive." They will cut forests, overgraze grasslands, overuse marginal land, and crowd into congested cities. The cumulative effect of these changes, "is so far-reaching as to make poverty itself a major global scourge."[9]

Nowhere is this connection more graphically illustrated than among the famine-ravaged people of Africa who have grown so familiar on U.S. television screens in recent years. Their plight, to quote again from Our Common Future,

> "...illustrates the ways in which economics and ecology can interact destructively and trip into disaster. Triggered by drought, its real causes lie deeper. They are found in part in national policies that gave too little attention, too late, to the needs of smallholder agriculture and to the threats posed by rapidly rising populations. Their roots extended also to a global economic system that takes more out of a poor continent

than it puts in. Debts they cannot pay force African nations relying on commodity sales to overuse their fragile soils, thus turning good land to desert. Trade barriers in the wealthy nations -- and in many developing ones -- make it hard for Africans to sell their goods for reasonable returns, putting yet more pressure on ecological systems Aid from donor nations has not only been inadequate in scale, but too often has reflected the priorities of the nations giving the aid, rather than the needs of the recipients."[10]

II. U.S. POLICY: A NEW VISION FOR THE 1990s

To correct these problems of ingrained poverty and severe environmental degradation will not be easy. It will require a new vision, a vision of world partnership to take care of our common future, a new concept of burden sharing to sustain this earth, its people, and its environment. Tinkering with outmoded assumptions, institutions, and relationships will not be enough to meet the problems of the 1990s and beyond. Nothing less than sustainable national development, development on which coming generations can continue to depend, must be the goal on all continents.

Sustainable Development

The term "sustainable development" has been used by different people to mean different things. AID tends to use it to mean a project can be sustained financially after foreign assistance has been terminated. Environmentalists use it to focus on ecological sustainability. By sustainable development in the Third World, we mean national development strategies that are environmentally sustainable, economically and financially sustainable, and institutionally sustainable. No development strategy which draws more heavily on the natural resource base than can be maintained over the generations is sustainable. Agricultural or energy programs cannot be considered sustainable if they use up nature's capital, denude the hillsides, deplete the soil, destroy spawning grounds and fisheries, or otherwise deny the future productive capacity of the biosphere.

Similarly, programs that cannot be funded over the length of time necessary to bring self-sustaining results or are dependent on long-term foreign financing are not likely to be financially sustainable. Economic policies that distort the market or create incentives for destructive practices are not sustainable. Food prices that drive farmers from production, trade barriers that too long protect inefficient manufacturers, technologies heavily dependent on uncontrollable world oil prices -- these and other policies and practices cannot be sustained economically. Nor will a strategy be institutionally sustainable (except, perhaps, at the cost of politically unacceptable dependence on outside assistance) without well-trained people, analytical capacity, and strong institutions for planning and delivering services.

The notion of sustainability thus links the environmental, economic, and institutional aspects of a country's development operations, though not in strictly parallel ways. A development strategy which is not sustainable in an environmental sense is not economically sustainable either. And a strategy which appears financially and economically sustainable, may not, necessarily, over the generations, be environmentally sustainable. And to be both environmentally and economically sustainable, a strategy must be built on sound analysis, able to rely on appropriate institutions for planning and delivering services, and carried out by adequately trained individuals, at all levels. To make the necessary best use of limited natural and human resources, national policies must fit environmentally and economically suitable practices together.

The concept of sustainable development is not a static one. It implies limits, but they are not absolute. Indeed, the productive potential of the resource base is relative to the size and growth of the population, the state of technology and degrees of social organization brought to bear. Managing natural resources (the air and water and land as well as the oil and minerals under it) and planning for population increases, selecting and developing the right technologies and marshalling social skills and shaping institutions -- together, these are the factors that lead to sustainable development.[11]

U.S. Response

The vision of sustainable development determines much of the agenda for U.S. policy toward the Third World in the 1990s, especially for its programs of cooperation, assistance and advice, but also for its trade and fiscal policies. Improvement in the lot of Third World people, particularly those who are at the bottom of the social and economic scale, is the most practical way to meet the two great, interconnected challenges of our time -- the challenges of world poverty and global environmental degradation. It is the economic and ecological foundation on which sustainable national, and indeed international, development can proceed.

In responding to this challenge, the United States reflects the deeply held humanitarian values of the American people. Like many other countries, the U.S. seeks to promote its political and economic interests around the globe in various ways. But there should always be an important place in U.S. policy and U.S. actions where we act internationally at our most altruistic and most farsighted. Concern for the poorest of the poor and for the global environment are concerns that have broad popular support in the United States. These concerns are the pillars on which to build a revitalized program of international cooperation which can command long-term public support for the necessary budget outlays in the U.S. Congress.

Development Cooperation Priorities

The U.S. foreign assistance program will not command the popular support it needs if it does not seek the best returns on its limited development dollars. A consensus is emerging among those concerned with sustainable development on the kinds of activities that will provide these returns.

First and foremost, capacity-building to enable countries to better manage their natural resources is essential. In many countries, this means the strengthening of environmental ministries and agencies through improvements in their monitoring, analytical and research capabilities, and enhancing their ability to interact effectively with the planning, finance and agriculture ministries that have traditionally had more power and prestige, or, alternatively, integrating environmental considerations into the work of the planning and other ministries. Regional and local institutions responsible for implementation need strengthening as well, as do key private institutions.

Training, at all levels, is of the highest priority -- from economists who shape macro policies to community participants who must keep agricultural records or account for development funds, from truck drivers and repair persons to computer programmers and business managers. USAID evaluation files are full of evidence that "micro-managing" development projects with lots of foreign consultants is not likely to engender a sense of local "ownership" or to ensure continuity after foreign funds have expired. A better investment of U.S. tax dollars lies in helping countries to help themselves.

Institutional development, education and training are areas in which the United States has some comparative advantage and where the investment dollar, by leaving skills behind, goes a long way. Indeed, as capacity building proceeds, USAID should expect to a much greater degree than in the past to fund local costs rather than foreign exchange costs, including the greater use of qualified local and other Third World specialists as trainers, consultants and managers of projects. In these respects, the United States might also help the World Bank to change some of its rules.

Second, the role of policy reform must be emphasized. Among the key lessons of the 1980s is the importance for development of certain kinds of macroeconomic policies--currency valuation, incentive systems, pricing and marketing mechanisms, to name just a few. For example, when government price controls set food prices too low in order to favor city dwellers, farmers become discouraged and production suffers. Artificially high currency valuations encourage proliferation of imports and dependence on foreign technology. In environmental matters as well, some national policies undercut the possibilities for sustainable development. For example, subsidies on pesticides can promote excessive use, thereby threatening human health, polluting water resources, and hastening the growth of pest-resistant species. Investment incentives, tax and credit subsidies, farm pricing policies, and logging concessions in public forests often intensify forest exploitation and/or encourage uneconomic conversion of forests lands to other uses.[12]

But changing macroeconomic policies often involves painful adjustments and temporary dislocations which can impact most heavily on the poor. To ease these burdens as well as to encourage developing countries to stay the course on policy reform, the United States and other well-to-do countries must collaborate by providing analysis, advice and necessary transition funding. In this, as in other measures, the United States must move in consort with other donor nations and agencies, for in most countries the level of U.S. development assistance is not high enough itself to leverage major macro policy changes. The need for better consultation is a common refrain. Particularly important is U.S. consultation and leadership in the IMF and World Bank to assure that policy reform efforts support the concept of sustainable development.

And third, there needs in many countries to be a greater reliance on non-governmental mechanisms. Many an experienced development assistance professional in the foreign aid business, and indeed Third World officials themselves, have expressed frustration and disillusionment with the notion that all development must be engineered and controlled by centralized ministries. National development, of course, remains the responsibility of national governments. Without appropriate national policies and allocation of development funds, sustainable development cannot take place. But the recent encouraging examples of Third World NGO and private business contributions to development -- sometimes in countries heretofore rigidly committed to centralized social philosophy -- should be built upon in the coming decade. The U.S. and other donor countries need to explore imaginatively with developing country planners the ways in which indigenous non-governmental entities -- local community organizations, women's societies, and private entrepreneurs -- can contribute to sustainable development.

III. STRATEGIES FOR SUSTAINABLE DEVELOPMENT

USAID has been a leader -- along with The Netherlands, Canada, and the Nordic countries -- in its insistence on assessing the environmental impact of development projects. World Bank President Barber Conable last year reaffirmed the Bank's commitment to environmentally sustainable development, and provided increased staff and money for environmental activities. But the gap between profession and practice remains wide, in part because the task is so difficult.

The following sections outline appropriate strategies in the interrelated areas of agriculture, forestry, water, energy, population and environmental pollution -- areas which are essential to economic growth, the quality of human life, and conservation of the resource base and its future productivity. Recommendations for making international trade and debt policy more responsive to the needs of sustainable development are also included.

A. Agriculture

Until recently, the "modern" agricultural sector was seen in many countries as the answer to both increased food production and the need for export-earning crops. As a result, the rural policies and programs of Third World governments overwhelmingly favored the better-off farmers working on well-endowed lands that were amenable to big increases in productivity. This sector received the lion's share of national and international research attention, infrastructure buildup, credit and a variety of subsidies, as well as the greatest bilateral and multilateral assistance from donor institutions. The result was the Green Revolution. There is wide awareness in the developing countries and international agencies that agricultural assistance now needs to focus on the rural poor who did not benefit from earlier strategies and who may even be worse off than before.

1. Low-input agriculture.

The rural poor are a heterogeneous group, but they share certain characteristics: limited assets, environmental vulnerability, and lack of access to services and land. A combination of population pressure, insecure title to land, and lack of credit and technical assistance forces poor farmers and herdsmen onto more and more fragile lands. They rely on uncertain rainfall in drylands, highlands, and forests -- areas that are difficult to farm.

Most of sub-Saharan Africa and remote areas of Asia and Latin America fall into the low-resource category. Here, per capita production has been declining and hunger is a critical problem. Furthermore, the consequences in resource degradation are severe -- desertification (in arid Africa) and deforestation and soil erosion (in moist, mountainous Central America, for example). Major policy changes, indeed a new development strategy, will be required to insure food and livelihood for the rural poor, and to restore and protect the water, land, and forests on which their survival literally depends.

In some respects, raising productivity of smallholders and alleviating rural poverty will be harder to achieve than the gains of the Green Revolution. The main actors will have to be the affected groups -- the millions of men and women who farm the land, non-governmental organizations capable of organizing community activity, and local and regional governments. The strategies required are information- and management-intensive, and will require organizing and implementation by people who really know the local agricultural and social systems. They require politically difficult decisions. And they take place in a world economy that is unlikely to grow as fast as it did in the 1960s and 1970s.

Policy Recommendations.

The primary emphasis for U.S. and other international assistance should be to promote sustainable agriculture and food security by strengthening smallholder agriculture and increasing rural employment and income. This will require intensive application of techniques to improve productivity on farms as small as half an acre. But it must also include attention to other means of increasing rural employment and income, such as improved transport, distribution and marketing, and support for small-scale, rural-based industries based on efficient and sustainable use of soil, water, and forests. Energy development (see below) must be an integrated part of such efforts, as will continued soil and water conservation, watershed rehabilitation and management, aquaculture, and agroforestry.

The United States can help with research and training assistance, institution-building, and policy reform. It can also take the lead to remove the bias against smallholder agriculture still found in the project- and policy-based lending of the World Bank and the regional development banks. For its bilateral rural development programs, we propose that the United States should target poverty and environmental degradation where they are most severe. This criterion suggests concentrating U.S. programs first of all in sub-Saharan Africa, where per capita production is likely to grow hardly at all before the end of the century,[13] and in South Asia, with its heavy concentration of poor people. Latin American and Caribbean countries (especially our nearest neighbor, Mexico, and troubled Central America), which have severe problems of environmental degradation and deep pockets of poverty despite their mostly middle-income status, should be the second important set of partners in projects and programs that will improve the productivity and sustainability of agricultural and forest lands.

a. Capacity Building

Research The United States has one of the world's foremost agricultural research and extension systems. It should now put this magnificent system at the service of sustainable agriculture by establishing cooperative U.S.-developing country programs of research and training devoted to small-scale, low-input agriculture. (Other terms emphasizing various aspects of this kind of agriculture are "resource-poor," "regenerative," "rainfed," "dryland," "smallholder," "marginal," "subsistence," and so on) The effort required will be no less than that which went into the Green Revolution -- development of new high-yield drought- and disease-resistant dryland crop varieties, new crop mixes, new rotation and tillage methods, nitrogen-fixation techniques, new applications of fertilizer and pest-management systems, new systems of water conservation, storage and processing of foods, incorporation of trees into farming systems, livestock management, and natural forest management.

The United States should work closely with Third World research and extension institutions to incorporate local farmers, fishers, and herders into the research and diffusion process. Because biological systems vary widely even within countries, the site-specific experience of local practitioners must be incorporated into the research and experimentation. Because many of the barriers to changing rural technology appear to be social and institutional, social science analysis will be an important part of any research agenda.

The United States should also persuade the Consultative Group on International Agricultural Research (CGIAR) to intensify its attention to low-input agriculture. Initially focussed on major cereal crops and well-endowed farming regions, this international research network has already begun to consider dry, semi-arid, upland, and other difficult environments as well as agroforestry, root crops, coarse grains, and other semi-subsistence crops. Its Technical Advisory Committee has recently formulated useful recommendations regarding agricultural sustainability, emphasizing that the entire research program should be pervaded by this consideration.[14] To achieve this in practice, the success indicators of agricultural research must be revised to take into account environmental considerations such as the system's contribution to maintenance and renewal of soil fertility, biological diversity, conservation of water, etc. In addition to allocating more research effort to the improvement of resource-poor, low-input agriculture, CGIAR should include in its research on high-input cropping systems an investigation of their environmental impacts and costs. Without such information, comprehensive and unbiased assessment of their total productivity is impossible.

Finally, the United States should help both Third World and international research institutions to understand that perverse agricultural forestry and other incentives can affect farmers' land use practices and choice of technology. For example, research agencies in many countries are working on integrated pest management programs at the same time as national pesticide subsidies undermine the likelihood that such programs will be adopted. Again, research institutions are attempting to develop less erosive cropping systems, but crop pricing or input subsidies may undermine farmers' incentives to preserve natural soil fertility. Our cooperative research agenda must include major effort to improve the quality of policy analysis and research.

Extension No less important than appropriate research priorities is extension of the resulting technology to farmers. In most countries, extension workers reach marginal farmers, especially women, much less effectively than they do the better-endowed, more educated farmers. Nor are they prepared to teach very much about sustainable technologies. The United States should apply its extensive experience in training extension workers to help strengthen and expand programs designed to reach marginal farmers and women. Once the results of research on low-input agriculture warrant, the United States should organize projects on a greatly expanded scale to train extension workers in appropriate farming technologies and to extend this knowledge to smallholders.

Institutional Development There is great variation among developing countries in the strength of their planning, research and training institutions and in the systems through which they deliver information, goods and services to the rural sector. But it is a safe generalization that even in the best endowed of countries, the institutions will be weakest when dealing with the remote, the rural, the poor, and the marginal. It is an appropriate role for the United States and other donors to invest heavily in the institutions necessary to do that. In some countries, this means developing policy-analysis units in the planning ministry, or building and equipping national environmental monitoring systems, biological research laboratories or agroforestry experimental field stations. In almost all countries, it will require finding ways to help nations build and strengthen local governments, local transportation, local community organizations.

b. Policy Reform -- Access to Land

In addition to tackling the subsidy questions discussed earlier, the United States must do what it can to foster smallholder access to land. The Food and Agriculture Organization (FAO) says that land redistribution and tenancy reform are the "most fundamental of anti-poverty measures."[15] It stands to reason that poor people will not plant and tend trees that they do not have the right to enjoy and use, that poor people will not invest meager savings and heavy labor in conserving soil and water on land to which they do not have secure title. And yet, in 1979 there were an estimated 30 million agricultural households who were landless, and another 138 million near-landless. In every region of the world there are countries whose need to prevent deforestation and improve agricultural productivity is impeded by the fact that the majority of rural people are virtually landless. In developing countries where land ownership is highly concentrated in the hands of a few -- a problem endemic in South Asia and Latin America -- the best U.S. technical and policy advice on agricultural strategies will not achieve sustainable development unless we are willing to support governments' efforts to achieve equity through land reform and tenancy rights. Special attention must be given to the roles and rights of women, who are the primary resource managers in many developing countries.

The United States, in its AID program and through the international agencies, should help national governments to redistribute land and to invest more heavily in land titling and registration, since greater security of tenure over natural resources improves incentives to good management. Similarly, codification of tenancy agreements (rather than ineffectually outlawing them, as some countries have done) will secure the rights of both parties and make possible incentives for greater productivity -- providing codification does not make exploitive relationships permanent. The tenurial rights of women, who manage much subsistence farming, may also need to be strengthened. In some cases it will be necessary to change "homesteading" laws to discourage forest clearance, or to reform tax laws to discourage large under utilized holdings. And through the International Fund for Agricultural Development (IFAD) and other development agencies, the United States should encourage national governments to emphasize the strengthening and development of local institutions for the management of common-property resources such as community woodlots, grazing space, and so on.

2. Green Revolution Agriculture

The Green Revolution package of improved seeds, heavy inputs of fertilizers, pesticides, water, energy, machinery and agricultural credit -- much of it deliberately subsidized to stimulate production -- led to astonishing productivity increases in parts of Asia, Latin America and North Africa and, for some countries, to substantial foreign-currency earnings from the export of commodity crops.

But the very policies that brought these benefits have led farmers to practices that can have severe environmental consequences. Green Revolution farmers often use underpriced irrigation water inefficiently, which can result in increased salinization, waterlogging and pressure for ever larger-scale water diversion. To maintain soil ferlility they excessively apply subsidized chemical fertilizers which run off the land and pollute streams, lakes and estuaries. And they have come to rely on heavy chemical pesticide spraying rather than on an integrated approach to pest management that is more effective and economical in the long run. Scarce foreign exchange requirements are often involved. The policies that lead to these kinds of economic distortion and environmental stress need to be corrected in the coming decade.

Policy Recommendations

The United States needs to put its weight behind policy reform to curb some of the excesses of Green Revolution agriculture. The rationale for the heavy input subsidies provided to farmers as an incentive to adopt Green Revolution technology has disappeared. These days, production growth can usually be better encouraged by raising output prices, eliminating impediments to production, and ensuring that inputs are used efficiently with as little environmental damage as possible. The United States can help by providing assistance and training in policy analysis, including examination of pricing policies, agricultural taxation, marketing arrangements, and the like. In particular, subsidies on water, chemicals, energy and mechanization should be examined and in most cases significantly reduced. Development assistance may also be needed to restore waterlogged and degraded soils. This technology may be more expensive and require more sophisticated techniques than most developing countries could manage on their own, but it is cheaper in most cases than building new irrigation systems.

3. Agriculture in the Industrialized Countries

While these changes are being undertaken in developing countries, some very important changes need to be pursued back home by the United States and other industrialized exporters of agricultural products, especially grains. Subsidies that support agricultural export surpluses from these countries depress and distort world prices. Furthermore, the extraordinary requirements of industrialized agriculture for energy and chemical inputs have environmental consequences of their own. The strategy for agricultural policy reform in industrialized countries should thus be based on ecologically and economically sound principles. Among the recommendations that meet these criteria are: (1) reduction of farm-input subsidies; (2) application of the "polluter pays" principle to off-farm damages caused by chemical, sediment, and other agricultural effluents; (3) switching from agricultural price supports to direct income transfers to farm households based on need; and (4) pursuit of multinational negotiations to reduce export subsidies and import restrictions that reinforce domestic prices.[16] Since international competition in grain exports drives many subsidization policies, it is particularly important that the United States and European Economic Community countries work toward these principles in tandem.

B. Forestry

Tropical deforestation is proceeding at such a rapid pace that significant development attention must be committed now to forestry issues. Natural forest management and reforestation programs are needed if pressure on the remaining natural forests is to be relieved, the environmental benefits of forests and farm trees in protecting soil and water resources are to be maintained, commercial forestry is to be sustainable, and the fuelwood, fodder and other needs of the rural poor are to be met. However, forestry problems and needs cannot be addressed in isolation. A sustained commitment to forestry, agriculture, energy and related rural development programs is required. Agroforestry -- the integration of food crops and trees in farming systems -- has particularly great potential. River-basin and watershed management must also be an integral part of rural development planning.

Policy Recommendations

In particular, U.S. forestry programs for developing countries must pay greater attention to innovative ways to increase local fuelwood supplies. From 30 to 98 percent of all energy consumed in individual developing countries comes from biomass, mostly trees,[17] but the costs and difficulty of collecting fuelwood have escalated. Tree plantations may successfully produce wood for commercial use, but experience in many countries indicates that government-sponsored reforestation schemes are contributing little, if at all, to local fuelwood supplies. Nor does agro-forestry yet contribute as much to local fuelwood supplies as do small woodlots, border plantings, etc. Most farmers will not plant trees simply to produce fuelwood; land, labor, and capital are too scarce for that, and fuelwood prices are still too low. In many rural areas, fuelwood can still be collected as a free good from the remaining natural forests. Nevertheless, farm forestry -- the growing of trees as a cash crop on farms to supply a market -- has the potential to increase fuelwood supplies as a by-product of higher-value tree products such as poles, sawn wood, fruit and other non-woody products from "multi-purpose" trees. Most countries need policies that will encourage good forest management, the development of woodlots and on-farm tree planting. They need assistance also for programs to provide seedlings and to organize, train and pay extension workers.

Across Africa, Asia, and Latin America, forests are being lost at roughly 10 times the rate at which they are being replaced. In sub-Saharan Africa the rate is 29 to 1! Much of the reforestation that is needed to help close this gap will have to be done by small farmers. The United States should assist developing countries to reform policies that lead to forest destruction and discourage sound forest management, and to support programs that encourage tree planting on farms and throughout rural areas. This should include decentralized seedling production and distribution programs, strengthening of forestry and agroforestry research and extension, and integrating tree planting with soil and water conservation programs. NGOs and local communities have a major role to play in reforestation efforts and should be a focus of U.S. assistance.

C. Water and Sanitation

Water is a precious natural resource whose economic value and importance for development is sometimes underestimated by Washington policymakers. It is crucial to agriculture and forestry. Its uses touch every human need: drinking water and food, personal hygiene, sanitation, electricity, industry, transport, and recreation.

World-wide, the supply of fresh water is ample for human needs, even though demands on it are growing rapidly. But water supplies are not evenly distributed and much is wasted. Sometimes, water shortages are the result of drought or natural disaster, but often there are human causes: disruption of hydrological cycles by deforestation and loss of soil cover, overuse of ground water, or excessive erosion.

Irrigated agriculture accounts for 70 percent of worldwide water use, but water for drinking, hygiene, and sanitation represents a second major use of fresh water. Clean water, and enough of it, is a primary requirement for basic health. About 80 percent of childhood deaths in the Third World result from water-related diseases, and chronic diarrhea caused by water-borne organisms is a common cause of malnutrition. In 1983, three years into the United Nations International Drinking Water

Supply and Sanitation Decade, the goal of universal access to clean water and sanitation was still far from being met. The World Health Organization (WHO) reported that only 49 percent of the people in developing countries had access to safe drinking water, and only 20 percent to toilets or latrines. Despite some improvements in the intervening years, population growth has left still larger numbers without coverage. And industrial pollution is a growing problem. In India, for example, 70 percent of all surface waters are still polluted. As the Yamuna River flows through Delhi, it daily picks up a staggering load of 200 million liters of raw sewage and 20 million liters of industrial wastes. It is now apparent that the Decade's efforts will fall far short of their goals. Thus it is important for the United States, through its aid programs and through its influence in the multinational agencies, to support continued effort through a second decade.

Perhaps the most important accomplishment of the first water decade was the understanding that more appropriate technologies -- moving away from Western-type systems of piped household water and water-borne sewage toward decentralized community-based systems, stand pipes, hand pumps, and so on -- could reduce wastage of water, cut costs by an estimated 90 percent, and make the UN Decade goals reachable. On the basis of this insight, the World Bank has developed three packets of training materials (for decisionmakers, technical, and community people) and an international training network. The Dutch, German, French and

British aid agencies have gotten behind this effort, and the Bank has been lending about 5 percent of its portfolio for these purposes.

Policy Recommendations.

The United States, too, should reorient its Water and Sanitation for Health, or WASH project, away from expensive and wasteful conventional technologies and toward the low-cost technologies now being embraced by other agencies and developing countries. This will require not only technical assistance and finance and materials for water systems, pumps, piping and maintenance, but also support for broad-ranging public education. Decentralized local sanitary systems of collecting and processing wastes both by composting and anaerobic digestion need to be developed, perhaps in combination with fertilizer and energy production. The technology exists, but the social organization and rewards often do not. For the most part, these systems will be developed and controlled by municipalities, but in some cases there may be room for entrepreneurs as in Patna, India, where a sanitary latrine linked with biogas production and sale of slurry for fertilizer is a profitable business.

D. Energy

We propose that U.S. development cooperation in the 1990s greatly increase its emphasis on energy for development. No other sector is so important to the needs of the environment and to every stage of development. In most developing countries, energy is the largest single part of the national development budget and takes the largest share of foreign exchange, thereby restricting their ability to import other goods and technology for industrial and agricultural development. Even the recent decline in world oil prices has not affected the overall demands of the energy sector on foreign-exchange earnings. Furthermore, the needs for energy in developing countries have only just begun to grow.

At the household level, almost every strategy for increasing household income, particularly rural farm income, will necessitate changes in energy use -- more efficient use, and increased use of modern energy and/or energy-intensive commodities like fertilizer. Low-income urban families even in middle-income countries spend up to 30 percent of their budgets on cooking fuel. And in rural areas, fuelwood and agricultural residues are still the staple household energy source for more than half the people. Each day, women and children must search ever farther afield through degraded and denuded forest to find enough. In some areas of acute fuelwood shortages, families are eating fewer meals per day and changing their diet to include fewer cooked foods.

At the same time, the production and use of energy has direct and serious environmental effects and costs that developing countries cannot ignore. The burning of fossil fuels and, to a lesser extent, the destruction of forests lead directly to the increase of carbon dioxide (CO_2) in the atmosphere and the associated rise in the earth's temperature through the "greenhouse effect." Air pollution from vehicles, factories and power plants is damaging health, buildings, crops, and forests, even in the poorer developing countries. As noted earlier, huge hydroelectric dams have their own set of environmental costs. And the demand for fuelwood adds substantially to deforestation and associated soil loss in tropical areas. On the health side, smoke from family cooking fires takes a very high toll in respiratory diseases and damage to the eyes.

Very large amounts of energy will be required for Third World industrialization, agricultural development, and residential use by rapidly growing populations. But if developing countries were to use energy at the rate of industrialized countries, five times the present global energy use would be required. Clearly, the planet's ecosystem cannot sustain increases of this magnitude.

In view of a rising environmental consciousness as well as the staggering capital costs of expanding energy production, the threat of rising oil prices, and the need to protect export earnings from the demands of the energy sector, the time may be ripe for a radical change in patterns of energy investment for developing countries. From 1972 to 1980, multilateral and bilateral agencies spent $14 billion on energy development. Ninety percent of this money went for generating and distributing electricity from very large power systems, 5 percent for fossil-fuel exploration, 3 percent for renewable energy sources, and less than 1 percent for energy efficiency. Though developing countries will continue to need power generation and will continue to build plants, the relative percentages of international energy investment need to be changed to place greater emphasis on efficiency and renewables. It is in the interests of the United States and other industrialized countries, who are the heavy users of energy and gross contributors to atmospheric deterioration, to share the burden of making the necessary transition to renewables.

One of the lessons we learned when oil prices rose precipitously in 1973-74 was that "new" energy capacity can be found in conservation -- and more cheaply than building new capacity. Thus, the U.S. economy was able to grow by 30 percent between 1973 and 1986 with no growth in U.S. energy use. Comparable changes in energy efficiency were experienced in Europe and Japan, permanently altering our assumptions on the relation between energy and development.

The opportunities for savings through more efficient energy generation, transmission, and consumption are at least as significant in developing as in industrialized countries. Cost-effective efficiency improvements are also the most environmentally benign source of additional energy capacity.

In particular, greater attention must now be given to energy for rural development. Though energy planners and developers have paid little attention to household technology, there are substantial savings to be had, for example, through widespread use of improved cook stoves. Primitive technology is not necessarily either cheaper or more efficient. The Tanzanian woman cooking in an earthen pot over an open flame uses eight times as much fuel as her affluent neighbor with a gas stove and aluminum pot. A wick dipped in kerosene gives only one-hundredth the light of a 100-watt electric bulb while using the same amount of energy. Renewable substitutes and greater efficiency of use have much to contribute here in meeting growing energy needs.[18]

Throughout the developing world extensive use is made of traditional fuels -- wood, coconut, and rice husks, bagasse left over from crushing sugar cane -- in agricultural processes and industrial plants. These renewable fuel resources are burned to cure tobacco, boil down sugar, and dry foods. Converted to steam, their heat is used in dozens of manufacturing processes. And everywhere these renewable resources are used most inefficiently. The technology employed dates mostly from the 1920s and 1930s. It is unbelievably wasteful of fuel and therefore more polluting than necessary. There are significant economic and environmental savings to be realized from upgrading these technologies.

Policy Recommendations

U.S. energy policies both at home and overseas should adhere to certain basic principles. They should (1) promote least-cost energy planning; (2) promote energy conservation and efficiency in production, transmission, and use; (3) employ the cleanest, least polluting, economically viable technologies available; (4)

undertake a major program of coordinated research, development, and demonstration projects to ensure the rapid development of renewable energy sources and improved technologies for their use; and (5) overhaul policies -- pricing regulations, taxes, research support -- in support of the above. In each of these respects, U.S. cooperation and investment in Third World countries should emphasize capacity-building -- i.e., training, research and analysis, and institution-building that increase national self-reliance.

1. Least-cost energy planning

USAID should help cooperating countries to plan the least-cost strategies to meet their energy needs -- for energy production, transmission, and use in the urban industrial sector, and for decentralized energy production for rural development. Major investments in institution-building and training will be required. The report of the World Conference on Environment and Development proposes strong energy-planning entities for all countries, and on a regional basis as well. The United States should support those efforts and help provide the training necessary to get them off the ground.

2. Conservation and end-use efficiency

The United States, through USAID and the multinational banks, should support moves toward greater energy efficiency as a way of buying time for development of renewables. For example, at a small fraction of the billions spent on conventional energy assistance, the United States could support a massive program to develop and market improved woodstoves -- based on experience in smaller programs it has already supported in several countries. The economic, environmental and health savings are obvious. In many countries, a viable private industry can be developed (they already exist in Thailand, Kenya and India, for example) using domestic materials. But where the cost of stoves is out of reach of the rural or urban poor, distribution should be financed by other means, with international assistance if necessary. And the use of more efficient stoves will slow the rate of forest destruction, giving the world a better chance to catch up on replacing the trees.

Second, the United States should take major initiatives to help Third World countries upgrade the stoves, furnaces, boilers, and kilns that are so widely used in agricultural and manufacturing processes. Technical assistance and financial support will be required to design, manufacture and maintain more efficient systems. This should include improved kilns for charcoal manufacture, briquetting techniques to make more efficient use of residues like peanut husks and coffee hulls, and better technology for curing tobacco and other crops. More efficient use of traditional fuels can greatly enhance the supply of process heat and steam, and even make practical the generation of electricity.

Third, the United States should encourage Third World governments, international banks, and other investors to support the production or purchase of energy-efficient new machines, appliances and transport. Extraordinary savings could be had. One study for Brazil has shown, for example, that investments totalling less than $10 billion over the period 1985-2000 in more efficient refrigerators, street lighting, lighting in commercial buildings, motors, and variable-speed drives for industrial motors would eliminate the need to construct 22GW$_e$ of electrical capacity costing $44 billion.[19] The United States and the World Bank should also provide assistance to countries to overcome institutional barriers to greater energy efficiency. Electric utilities may need to be persuaded of the need to incorporate power generated from multiple sources, or they may need help in developing an end-use approach to the planning, financing, development and marketing of energy.

3. Use of the cleanest, least-polluting technology

Because conventional power plants have the potential for contributing to global warming and cross-frontier pollution, the United States and other industrialized countries have a mutual interest in assuring that Third World countries employ the best available technologies, and in sharing the cost burden if necessary. The United States should, both through its bilateral programs and its leadership in the multilateral agencies, help developing countries improve the efficiency of conventional power plants. This might include retrofitting of existing plants and/or training to improve maintenance. For new plants as well as other aspects of energy development, state-of-the-art technology for both efficiency and pollution control should be a condition of international assistance. The United States should seek agreement on this principle with other exporting countries lest U.S. energy-efficient, clean technologies be at a disadvantage competing in the world market.[20] In some countries, there will be environmental and/or economic reasons to subsidize purchase of more efficient equipment or new fuel sources, especially renewables.

Natural gas can be used for many of the same purposes as oil, and it is easier to burn cleanly. In some instances there are already natural gas discoveries that are not being exploited, but most sedimentary basins in developing countries have barely been explored. USAID support could make a valuable contribution at the feasibility stage, with the subsequent development costs sought from multilateral or private sources. In countries with significant gas resources (including Malaysia, Tunisia, and Sudan, among many others), the United States should use its considerable comparative advantage to help governments in exploration and development. Programs to encourage U.S. oil and gas independents to overcome initial information and other barriers, and possibly ways to insure risk capital and dividend flows, could create a profitable role for the U.S. private sector. For example, U.S. companies in partnership with people experienced in rural industry and agriculture could help develop small-scale decentralized options hitherto ignored.

Nuclear energy, in our opinion, does not at this stage deserve development assistance support. It is capital-intensive, and until safety and disposal problems can be overcome, cannot meet environmental or economic standards. It should be considered the energy source of last resort, to be used at some time in the future when the environmental and safety problems have been overcome.

4. Renewables

U.S.-sponsored demonstration projects should support developing country efforts to develop renewable sources of energy. Insofar as possible, they should emphasize reliance on local materials, technology, and manufacturing so as to reduce the need for foreign-exchange outlays for energy investments.

Various forms of assistance are appropriate. For example, the United States should expand and accelerate its existing tropical forestry efforts in order to enhance fuelwood supplies through reforestation and agroforestry. Where feasible, it should promote mini hydroelectric development such as USAID supported in Thailand; these small dispersed dams minimize transmission costs and can be developed and managed with local labor and control. The United States should also promote solar energy (including wind) where practical -- i.e., for water heating and pumping -- and support the improvement of local manufacture of solar-thermal and solar-electric technologies. Development assistance can promote the "modern" use of traditional fuels such as wood and particularly agricultural residues and wastes which can be digested to make flammable gas (methane) and liquid fuel (ethanol), but international assistance is required for research and development in order to develop applications and overcome the social, institutional, and organizational constraints.

5. Policy Reform

The United States should, through the IMF, World Bank, and bilateral assistance agencies, seek the economic rationalization of energy policies in developing countries. Of special concern are the handsome energy subsidies for both fuel oil and electricity found in many developing countries. Such pricing policies can lead to profligate wastefulness and future energy insecurity. At the same time, they contribute to air pollution and CO_2 buildup. Since rolling back subsidies is always politically difficult to do, foreign assistance might in some circumstances be used to cushion the transition to more realistic prices and protect the poor from the effects of price increases.

Policies may also need to be developed to provide incentives for increasing efficiency or cutting fuel costs to the builders and managers of conventional power plants and factories.

In addition, policy reform in industrialized countries can have important benefits in developing countries as well as in industrialized ones. For example, aggressive efforts to improve automotive fuel efficiency -- through already available technologies -- could help forestall a rise in the world price of oil and lessen the environmental impact of exhaust fumes worldwide.

Needless to say, the United States cannot accomplish any of these policy and program changes except in cooperation with the developing countries and other donor countries. Alone, we simply don't have the leverage or the ability to withstand less high-minded competition. It will be especially important to cultivate likemindedness in the Japanese, who are already significant actors on the development scene, and to work with the European, Chinese and Soviet bloc countries who, like ourselves, are major contributors to the greenhouse effect caused by burning of fossil fuels.

E. Population

Even as land deteriorates, the developing world's population continues to grow. Since World War II, the world's population has doubled, from 2.5 billion to 5 billion, with roughly 85 percent of the growth coming from the developing world due to health improvements that cut death rates sharply. Africa alone faces one million more mouths to feed every three weeks, and food production, now increasing at a rate of 2 percent yearly, has failed to keep up with the 3 percent rate of population growth. Kenya, with one of the world's highest growth rate (3.9 percent a year) will have to create almost 11 million jobs by 2000 just to accommodate those already born.

Barring unforeseen disasters or miracles, we will have another billion human beings with us by the end of the 1990s. And United Nations medium projections, which assume fairly rapid but by no means certain declines in birth and death rates, foresee a further doubling of the population -- 95 percent of it in the Third World -- by the time stabilization is reached, at about 10 billion, toward the end of the 21st century.

Mention of Third World "population pressure" conjures up visions of too many people pressing on too few resources. In reality, population growth rates and the effect of people on resources and the environment are both hugely affected by levels of technology, social organization, cultural tradition, and national and international policy. One must be wary of generalizations.[21]

The surest and most direct impact of larger population will be on agricultural resources. To feed that projected 10 billion adequately will require three times the basic calories consumed today, equivalent to about 10 billion tons of grain a year. To produce that much, all the world's current cropland would have to be farmed as productively as Iowa's best cornfields, or about three times the current world average. Recent developing country achievements and emerging technologies suggest that the goal can theoretically be met. But the challenge is enormous, and the population figures lend an urgency to food production that cannot be denied.

It is not just numbers, but also population distribution that has important resource and environmental effects. In the Philippines, for example, wanton logging by favored concessionaires has pushed slash-and-burn cultivators onto unstable hillsides, accelerating erosion. In the Amazon Basin, road building and government incentives, along with extreme poverty, have propelled people farther and farther into the fragile rainforests. In Kenya, since arable land is now almost fully under cultivation, the rapidly growing rural population is being forced onto ecologically fragile, less viable areas, bringing desertification behind them.

A second inexorable population shift, to the cities, contributes to a different kind of environmental stress. In 1985, there were 28 cities in developing countries that had over four million people. By the end of the 1990s, there will be 50 such cities. According to the projections to 2025, it is expected that 85 percent of the population increase in the Third World will be in urban areas.[22]

Third World cities are growing so fast that water, waste and power facilities cannot keep up. Vast squatter communities spring up on hillsides and gullies and in industrial areas. Such communities are often gradually upgraded, but the pace of urban growth brings a continual immigration from the countryside. The health problems in such cities are truly environmental in origin. They result from lack of clean water and sanitation, compounded by emissions from poorly maintained vehicles and uncontrolled industrial pollution. The lack of waste treatment, regulations and controls cannot be blamed wholly on population growth. However, the spontaneous unplanned and uncontrolled growth of the urban areas makes dealing with the problems that much more difficult.

Policy Recommendations.

Around the world, one country after another, faced with undeniable numbers of mouths to feed and services to provide, has instituted policies to slow population growth. The most successful of these programs -- in such island countries as Barbados and Sri Lanka and in vast continental China -- have featured mutually reinforcing strategies. They offer full access to family planning information and services, combined with programs to improve health (particularly of mothers and children), to raise the standards and hopes of the poor, and to educate the people (especially the women). In their example lie the clues for U.S. policy in the 1990s. As the report of the World Commission on Environment and Development has said, "developing country population strategies must deal not only with the population variable, but with the underlying social and economic conditions of underdevelopment," education and employment (especially for women), and shelter and sanitation.

The United States urgently needs to resume its traditional leadership in family planning programs, and USAID must try to mesh its population assistance programs more clearly and deliberately with the other relevant socioeconomic and education programs it supports.

The United States used to be the leading supporter of family planning programs in developing countries. For 20 years we have also been the largest donor to international programs. But policy changes during the Reagan Administration have seriously weakened U.S. support for family planning. Funding for international family planning has been cut from $290 million in 1985 to $235 million in 1987, a nearly 20 percent reduction. The budget request for FY 1988 is $226 million. These cuts urgently need to be restored, and budgets increased as necessary.

The Reagan Administration took the occasion of the International Conference on Population in Mexico City in 1984 to announce that U.S. funds may not be provided to any foreign organization that has any involvement with abortion, even if its abortion-related activities are supported by private or other non-U.S. funds. This policy resulted in the withdrawal of U.S. support for programs of the International Planned Parenthood Federation in December 1984, and subsequent cuts and then elimination of the U.S. contribution to the United Nations Fund for Population Activities (UNFPA). These, too, need to be reversed.

But the traditional U.S. leadership role was not just financial. Sharon Camp, of the Population Crisis Committee, points to the U.S. role in providing technical leadership in the development of effective birth control systems. She sees the current policy as eroding this stance. "Most of the expertise in family planning -- biomedical research on contraceptives as well as attitudinal studies -- has traditionally been housed in U.S. institutions," she said. In addition, the United States has been the top supplier of inexpensive, high-quality contraceptives.

The national family planning programs which the United

States should once again promote and support will have several ingredients. They must be voluntary, and should be part of all primary health care programs. National leaders must play a strong, prominent role in promoting the benefits of reduced fertility, and be backed by vigorous public education using whatever media is available (newspapers, billboards, radio, and television). There must be a sufficient number of trained workers and an adequate supply of low-cost contraceptives. Funding levels, including the U.S. contribution to the UNFPA should be restored to earlier levels, and increased as necessary to do the task. And they must be coordinated with health care and other programs designed to meet basic human needs and give people confidence that their children will survive.

F. Pollution Control

In most developing countries, efforts to control pollution resulting from industrial processes are grossly inadequate or totally absent. Industrial water pollution is the most critical ecological threat in East Asia, for example. In Latin America, mining (lead, silver, zinc) is the leading source of water pollution. In Mexico City, a combination of industrial and vehicle emissions produces air quality so bad that breathing it is equivalent to smoking two packs of cigarettes a day.[23] Levels almost this bad are found in city after city in the Third World. Even in cities that do not have heavy concentrations of industry, vehicular emissions are a major cause of air pollution.

Regulatory requirements, where they exist, are often unenforced due to budget or other constraints.

Policy Recommendations

Pollution control is a field in which the United States has considerable comparative advantage. We have design advice, regulatory experience, monitoring techniques, equipment and training to offer. If the United States were to establish some intermediary agency to identify opportunities and develop contacts, thereby reducing transaction costs for American entrepreneurs, U.S. private companies may also have a constructive role to play.

IV. THE WORLD ECONOMIC CONTEXT OF SUSTAINABLE DEVELOPMENT

Despite some growth in the economic power and influence of some Third World nations in recent decades, the factors that shape the world economy are still beyond the control of the developing countries so seriously affected by them. World finance, debt, and growth are still controlled by the seven to ten most powerful industrialized countries. The value of the dollar still determines the cost of key imports, including oil. A one-point increase in the U.S. interest rate still adds billions to the debt-service costs that debtor nations must pay each year, often more than they receive in foreign aid. While world trade actually increased by 4 percent in 1986 (and rose again in 1987), non-oil commodity prices dropped by 10 percent and are now at their lowest in 50 years relative to the price of manufactured goods,[24] making it ever harder for developing countries to earn foreign exchange for imports and debt-servicing. Trade barriers intensify the problem.

Indeed, capital is now flowing from the poor to the rich countries, rather than the other way around. Even Africa, the poorest of the continents, has a net flow of cash to the North. In 1987, total developing country principle and interest payments exceeded new lending by $29 billion! This imbalance was compounded by capital flight from developing to industrialized countries and by the failure of private investment and commercial bank lending to resume after the debt crisis of 1982. Thus, while the industrial powers debate the nature and size of development assistance, there is a troubling awareness in the Third World that the trade, debt, and financial decisions made by these same powers far outweigh the significance of foreign assistance in determining their development progress.

This awareness is reflected in many voices. The Bangladeshi Ambassador to the United States jokes wryly that his country would happily give up U.S. development assistance if the United States would eliminate its barriers against jute imports. At a 1987 meeting of non-governmental representatives from developing and industrialized countries -- all of them committed to improving the conditions of Third World poor people -- the message from the Third World was that non-governmental organizations in the industrialized countries can most constructively promote Third World development by encouraging a more supportive policy environment in their own countries, that macro policies governing the terms of trade have a bigger impact, for good or bad, on development than does the provision of international development assistance.[25] And Overseas Development Council analysts like Stuart Tucker and Richard E. Feinberg, testifying before Congress provide the data that document that conclusion.[26]

Environmental Implications

The trade and debt crises are more closely connected to the problem of sustainable development and deteriorating environment than is at first apparent, because these crises appear to be hastening the deterioration of resources on which long-term growth depends. On the one hand, large new capital-intensive development projects will get much more careful scrutiny and most will probably not get built, which may ease the pressure on natural resources. Misguided programs like the Indonesian transmigration scheme have been scaled back, and some budgetary subsidies have been cut. But at the same time, Third World colleagues warn that financial stringency is slowly undermining hard-fought recent gains in resource conservation and environmental protection. While available information is mainly anecdotal, the following points are frequently made:

o Conservation usually takes a back seat in times of economic stress. As economic conditions have worsened in developing countries, and as debt pressures mount, there has been a tendency to ignore environmental planning and conservation measures in both industrial and rural development projects.

- The austerity measures that have been required under IMF adjustment programs and World Bank structural adjustment agreements include government cutbacks in investments and operating expenditures. These are likely to fall disproportionately on fledgling, weak environmental and conservation agencies and programs. This is undermining the earlier efforts that have been made to bring ecological considerations into development planning and projects.
- Austerity measures and general recessionary conditions also have led to sharp declines in per capita incomes and increases in unemployment. This puts more pressure on the natural resource base as more people return to subsistence farming and rely on scarce forest and water resources.
- Pressures to expand primary commodity exports can lead to increased deforestation and to expansion of cash cropping on available good lands, thus further marginalizing the rural poor and forcing them to poorer, erosion-prone lands.
- Tariff rates that rise with each successive stage of processing (e.g., tariffs on yarn are higher than those on cotton) discourage processing and increased earnings on Third World commodity exports. They require higher

volumes of commodity exports to make up the difference, which may in turn flood world markets and lowers world prices, forcing countries to put still more strain on an already pressured resource base, accelerating a downward spiral of poverty and environmental degradation.

- In countries that must postpone dealing with air and water pollution problems (which have now reached crisis proportions in some Third World countries), future public health and clean up costs, as we have discovered in the United States, will be staggering.[27]

In sum, the resource base, already battered, is being required to pay for debt and trade imbalance in ways that will achieve neither financial nor environmental nor development goals. To assume that this situation can continue is foolishly short-sighted and promises greater impoverishment of future generations.

A. Strategy -- Debt/Trade/Development

To be of long-term value, solutions to the Third World trade and debt crises must meet three criteria: they must be financially sound; they must be protective of the economically weak; and they must not destroy the resource base. Although detailed recommendations regarding trade and debt are beyond the scope of this paper, some recommendations designed to meet these criteria should be mentioned. For example:

- All international lending -- for projects, policy and restructuring -- should meet exacting standards of sustainability. The World Bank, under the direction of President Conable, has recommitted itself to firm environmental standards to govern its lending. The United States, which has been a major supporter of these efforts, should continue to monitor and strengthen this trend, and should, in concert with other donor members, press for similar changes in the regional banks.
- Commercial banks also must clearly understand that environmentally unsustainable projects are bad financial risks. Government-sponsored guarantee and insurance programs such as the Overseas Private Investment Corporation (OPIC) should make awards only after assurance that the activities involved contribute to sustainable development.
- Along with nutrition, health, and education budgets, certain natural resources programs (e.g., forest and watershed management, coastal fisheries, and soil conservation) should be exempt from national budget cuts taken in the name of structural adjustment.
- With regard to trade, Third World countries should not be forced to generate increased exports just by exploiting natural resources more heavily. Rather, in view of their desperate employment needs, they need

better reception for their labor-intensive exports. If developing countries are not permitted to export labor services in the form of value added to commodity exports and other goods, they are likely to export them as migrants.

- International agricultural surpluses exported under P.L. 480 and similar commodity programs should never, except in the case of emergencies such as famine, be distributed in ways that undermine developing country production of food crops. They should be used always in food-for-work and other food aid programs that offer incentives to conserve fragile resources, replant deforested areas, and encourage sustainable agriculture.

Finally, the United States should actively explore the several creative proposals that have been floated by developing country leaders, environmental NGOs, and progressive business and banking officials to swap debt for other development and environmental ends. Some proponents advocate the creation of a global fund to purchase debt and convert it to development purposes, a fund in which developing countries would participate in the management. A study organized by the United Nations Development Programme and World Resources Institute and supported by the aid agencies of the United States and Canada, is exploring the feasibility of a new international conservation financing program. In addition to financing debt-for-nature swaps and other innovative funding mechanisms, this facility will seek to co-finance environmental projects and sustainable development with public and private funds. Blocked funds might be used for similar purposes.

Such swaps could have enormously beneficial effects on the environment. They can be a catalyst. They can provide the impetus and leverage for widespread improved management of natural resources. The Conservation International's Bolivian experiment bears close watching in this regard. It has already brought competing economic interests (cattlemen, indigenous Indians, forestry people) together in a regional planning exercise. Though the specific Beni Reserve in question is quite small (335,000 acres), the policies and programs developed around it could strengthen the management of the entire surrounding forest (4 million acres), and thus affect natural resources management in the whole Province of Beni (10-12 million acres), the whole northeast quarter of Bolivia.[28]

Debt swaps could assure ample, steady financing for conservation efforts in some countries and thus be the salvation of the environment. The amounts may be small in terms of overall ~~debt,~~ but a mere 2-3 percent of the Latin American debt in local currencies that could be programmed over 15 years would enable the countries to accomplish fantastic things to conserve and manage resources wisely and to protect unique biological areas. What many Latin countries need in order to accomplish their environmental ends is access to large amounts of predictable local financial resources that will pay for running the parks and reserves they create. For the swaps to work the U.S. Treasury will need to make the necessary changes in the laws and regulations governing commercial banks. A combination of provisions for taking loan losses and charitable gifts should provide appropriate incentives.

Even in the early exploration and promotion of these concepts, advocates of these ideas must move with the fullest participation of the developing countries, lest the specter of U.S. corporations, banks, and private voluntary organizations (PVOs) acquiring large pieces of developing-country real estate provoke condemnation of the idea as some new form of colonialism. So far, the key national and international agencies that have a potential interest in these swaps -- the World Bank, IMF, USAID, the Japanese -- are not behind the concept at all. Imagination and leadership on the debt issue is coming instead from some Third World finance ministers and from the U.S. private sector--from banks, investment houses, and NGOs.

Advocates should also recognize that debt/environmental swaps might accomplish a great deal on the environmental side, and still make only the smallest dent in a developing country's debt. They must therefore be accompanied by other debt relief measures as well if the net resource flow from the developing countries is to be stopped and development and economic growth resumed.

B. The Resource Management Connection

Beyond these specific recommendations, it is important to recognize that productivity increases from careful management of the natural resources sector, which looms very large in the economies of most developing countries, can provide a part of the answer to the debt and trade crises. More effective use of locally available resources can simultaneously reduce the need for foreign investment, save and earn foreign investment, expand domestic production, and reduce resource deterioration. Consider some examples:

- About 15 percent of debtor country imports are for food. Improvements in domestic agricultural productivity are needed to meet the needs of expanding populations, and, as the examples of India and China make clear, they can markedly improve trade balances. Even where net food exports are not a realistic possibility, reductions in food imports are.
- A good example of making better use of available resources is in the area of irrigated agriculture. The FAO anticipates investments of $100 billion over the rest of the century to expand irrigated areas, but if current irrigated areas attained their production potential through better management, only limited expansion would be needed.
- Another 15 percent of imports by developing countries is for fuel, and more than 90 percent of external

financing for energy has gone to hydro and conventional power projects. Yet, all available studies indicate that the potential for sharp improvements in energy efficiency in developing countries -- from Brazil to Kenya -- is enormous and represents the least-cost approach to balancing energy supply and demand. Also, in many countries, biomass energy systems offer excellent promise in reducing oil imports.

o Surprisingly, developing country imports of forest products exceed $10 billion annually and are increasing steadily. Many countries such as Mexico and Nigeria, which should be able to supply their own needs, are major importers. In other countries, industrial forestry has been neglected to the point that exports are in decline.

V. CONCLUSION

Thus, the thrust of this analysis is that the United States, acting in consort with other donor nations and in cooperation with developing ones, should strive to help developing countries achieve large sustained productivity increases from the existing resource base and to make the most efficient possible use of petroleum and other vital imports. But it must be recognized that the economic growth necessary to mitigate poverty and protect the resource base cannot take place without financial resources adequate to the task. It follows, then, that the

United States should also provide leadership to bring debt relief and to generate new lending for sustainable development purposes. Our final recommendation is thus addressed to our fellow environmentalists -- and that is, that they should join wholeheartedly in the constituency that favors adequate foreign assistance budgets and increased international lending for sustainable development.

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SUSTAINING HUMAN PROGRESS

Lester R. Brown, President, Worldwatch Institute

Let me begin, Senator Sanford, by congratulating you for organizing these hearings on sustainable development. Few issues are so central to the human prospect, or so neglected, as the question of whether progress can be sustained. As you know, this is no longer a hypothetical question. Both Africa and Latin America will finish this decade with lower living standards than those with which they began it.

Let me also pay tribute to the report of the World Commission on Environment and Development, Our Common Future, which inspired these hearings. This United Nations' study, frequently referred to as the Brundtland Report after the Commission's Chairman, Prime Minister Gro Harlem Brundtland of Norway, represents a major step forward. The distinguished members of the commission, including William Ruckelshaus of the United States, have underlined in their report the central relationship between the global economy and the environmental support systems on which it rests. The 22 commissioners from 21 countries with widely varying levels of development and ideological orientation reached agreement in this basic policy document. Their long list of recommendations, including such things as much greater investment in global environmental assessment and the reporting of the results of these assessments, deserves to be taken seriously by governments everywhere.

In each of the past five years, we have issued a State of the World report at the Institute, subtitled A Worldwatch Report on Progress Toward a Sustainable Society. We chose sustainability as the organizing focus for the report because we thought it would be the most useful to policymakers and concerned citizens if it were structured along these lines.

The Concept of Sustainability

Sustainable development is a complex and elusive concept. Virtually everyone who gives a talk on development includes a paragraph on the need for sustainable development. Unfortunately, few ever get beyond this brief formulation of the concept.

The notion of systematic, sustainable development originated with economists. If societies consumed less than they produced, then the difference--the savings--could be invested to increase future production. In this conceptualization, the key to future progress is savings. Other things being equal, societies that save a lot should develop rapidly. Those that save little would develop less rapidly. In the corporate world, these savings came to be known as profits. If a corporation took in more money than it spent, it could invest that money in increasing future productivity capacity.

After the colonial age came to an end during the fifties, the concept of sustainable development was widely adopted throughout the world. For the first time, virtually all governments were adopting the concept of saving some of today's income for investment in a better tomorrow. At the public and the private level, the concept of sustainable development through savings was firmly imbedded.

In the early years of international development, formulating a successful development strategy was relatively easy, something that economists could do largely on their own. Typically it involved raising the level of investments through internal savings or capital borrowed from abroad. Skillful investment by national governments and international lending agencies helped create the infrastructure that made private sector investment profitable. Profits from these investments were then reinvested, attempting to ensure that development would be a sustainable process.

Although the economic concept of sustainable development was widely accepted and almost universally practiced, it was inherently flawed. According to the economists' general formulation of the economic strategy, the only likely threat to sustained progress would be a fall in savings or unwise (in the private sector, unprofitable) investment decisions that led to waste. Well before living standards started to fall in Africa, ecologists pointed out that the economists' concept of sustainable development, applied in isolation, can become unsustainable--indeed, it can lead to economic deterioration and even collapse. Ecologists have become increasingly concerned with the long-term consequences of excessive pressures on natural support systems, such as forests, grasslands, soils, and water resources.

For ecologists, there are many threats to sustainable progress. The use of some technologies may be unsustainable. The use of some resources may be unsustainable. Unsustainability may be national or it may be global. The industrial use of chlorofluorocarbons may not be sustainable simply because their use will deplete the ozone layer in the upper atmosphere that protects life on earth from harmful ultraviolet radiation. An increase in the amount of ultraviolet radiation reaching earth could injure human health and reduce crop yields, thus making the use of this technology unsustainable. The international community is now wrestling with this issue.

During the late forties and fifties, DDT, a pesticide, was widely used to control insects, most importantly for mosquitoes the transmitted elephantitis. At the national level, many countries banned the use of DDT by the mid-sixties, because it would lead to a wholesale destruction of animal species, leaving a vast tear in the fabric of life on earth.

More recently, Indonesia has banned the use of 57 pesticides on its rice crop. As Indonesian farmers used more and more pesticides to control insects, they discovered that they were destroying the natural controls of the pests as well, creasing an even greater insect threat. After a point, the growing use of pesticides can also destroy microorganisms in the soil, depriving it of its life-sustaining qualities. Environmental trends can threaten not only sustainable development, but the very sustainability of societies. Today we study the archeological sites of societies that were undermined by environmental deterioration. Much of the fertile wheat-growing land that once made North Africa the granary of the Roman empire is now desert. Early civilizations in Mesopotamia were undermined by the salting and water-logging of their irrigation systems.

Some national societies are being environmentally undermined today in much the same way. The desert is claiming more and more of Mauritania and pushing people out of that nation, with the result that there may now be more Mauritanians living in Senegal and Mali than in Mauritania. In the absence of emergency desert reclamation efforts, Mauritania, as we now know it, could disappear as a country by the end of this century. Climate change could have a similar impact on other countries. In an address to the U.N. General Assembly last October, following the presentation of the Brundtland Commission report, President Maumoon Abdul Gayoom of the Republic of the Maldives, a country of 190,000 people living on some 1,190 small islands off the west coast of India, referred to his country as an endangered nation. If the projected warming of the earth materializes, and sea level rises as projected, the Maldives, with much of its land less than seven feet above sea level, may quite literally disappear.

Sustainable progress can be threatened by resource depletion or mismanagement. For example, the heavy worldwide dependence on oil, a nonrenewable resource, as the principal source of energy in the world economy is a source of concern to many.

While the early concern about the long-term sustainability of progress focused on the depletion of nonrenewable resources, it has recently come to focus on the mismanagement and consequent depletion of renewable resources. If the demand on forests becomes excessive, they begin to shrink, eventually disappearing entirely. This, in turn, leads to other environmental changes, such as increased soil erosion, increased rainfall runoff, a reduction in aquifer recharge, and overall land degradation.

The economists' focus on increasing investment created a rising tide of economic progress during the century's third quarter, one that lifted virtually all nations to new highs. Living conditions were improving almost everywhere. Life expectancy, perhaps the best single measure of the adequacy of food supplies and health care and overall well-being, increased dramatically throughout the Third World.

Sustainability Emerges as an Issue

Then some clouds began to form on the development horizon. Food production started to fall behind population growth in Africa. With per capita food production falling on this agrarian continent, it was only a matter of time before per capita income began to fall as well. The sustained decline in living standards in Africa during the seventies was the first continent-wide decline since the war decade of the forties.

Other parts of the world, such as Central America, the Andean countries, and the Indian subcontinent, were caught in this deteriorating relationship between population and environment. Rapid population growth, deterioration of the economy's natural support base, and unmanageable external debt have combined to reduce living standards throughout most of Latin America during the eighties.

In many parts of the world progress, or the lack thereof, is being determined less by economic trends, such as investment levels, and more by the changing relationship between people and natural support systems. Thirty years ago the demand for firewood did not appreciably exceed the sustainable yield of local forests. Thirty years ago the demand for forage by livestock did not markedly exceed the sustainable yield of local grasslands. Similarly, most of the new land plowed could sustain cultivation with a minimum of care.

Today, in almost all Third World countries, human demand exceeds the carrying capacity of local, natural support systems. It is the degradation of these natural systems that is shaping the future of many developing countries. Farmers may be investing as much effort today as 20 years ago, but with much of their topsoil washed or blown away, they produce less.

In the early stages of development, agriculture, livestock, and forestry were popular areas of investment. Thirty years ago, investments in meat packing plants in Africa were a way of converting local resources into capital to fuel the development process. Similarly, sawmills to produce logs or lumber for export were traditionally a source of foreign exchange in many developing countries. Investments in such facilities today now hasten deforestation. Today, plowing more land in a Third World country more likely than not means plowing highly erodible land, land that in a matter of years may become wasteland.

We can now see clear threats to human progress in the earth's changing physical condition at the global level. In each of our five annual State of the World reports, we in effect give the world an annual physical. The results are not reassuring. Each year the earth's forests shrink, its deserts expand, and its topsoil layer becomes thinner. Each year, atmospheric carbon dioxide levels rise, hastening the warming process that has apparently already begun. Each year the ozone layer is being depleted. Each year the diversity of life on earth diminishes as species of plants and animals disappear.

Even as we begin work on State of the World 1989, we know that each of these trends will continue. We also know that if they do continue for much longer, they will undermine human progress, leading to a deterioration of living standards in more and more countries, much as has happened in Africa over the last two decades.

Some of these trends, such as depletion of the ozone layer in the upper atmosphere that protects us from harmful ultraviolet radiation, could literally affect the habitability of the earth. Thus far, the only major increases in ultraviolet radiation reaching the earth have come in Antarctica and, to a lesser extent, in the Arctic. If the depletion of the ozone layer is not arrested quickly enough, we could eventually see a migration of people away from the poles toward the middle latitudes in order to escape the intense ultraviolet radiation.

One thing is clear from these successive analyses: we can no longer take sustained human progress for granted. Without some major shifts in priorities, living conditions could begin to deteriorate for more and more people. When we talk about the prospects for sustainable development, we are now talking about nothing less than the human prospect.

Carrying Capacity Concerns

As noted earlier, concern over whether the existing threat of development is sustainable originated with ecologists concerned with carrying capacity. They were the first to warn that some forms of development and some population sizes were becoming unsustainable. In many countries, wood collection for fuel and other uses exceeds the sustainable yield of remaining accessible forests. A 1980 World Bank study of West Africa showed that fuelwood demand exceeded estimated sustainable yields in 11 of the 13 countries surveyed. Only in Senegal and Ghana was the annual growth of remaining woodlands believed sufficient to satisfy demand.

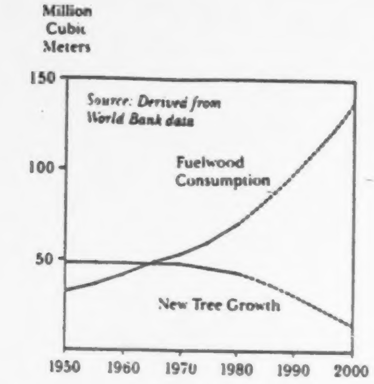
The degree of imbalance between demand and sustainable yields of wood varies widely. For example, in both semiarid Mauritania and mountainous Rwanda, firewood demand is 10 times the sustainable yield of remaining forests. In Kenya, the ratio is 5 to 1; in Ethiopia, Tanzania, and Nigeria, demand is 2.5 times the sustainable yield, and in Sudan, it is roughly double.

Sudan's wood imbalance illustrates the interaction between rapidly expanding populations and their biological support systems. Estimates based on World Bank data indicate that national fuelwood consumption crossed the sustainable yield threshold somewhere around 1965. From then on, fuelwood consumption exceeded new tree growth, gradually diminishing both the forest stock and each year's growth. (See Figures 1 and 2.)

During the first few years after the sustainable yield threshold was crossed, forests in Sudan changed little. After 20 years, forested area had contracted by about one-fifth. In the next 20 years, however, expanding demand is likely to deplete virtually all the accessible remaining woodlands. The first half of this 40-year span provided little evidence of the problems coming in the second half. But once the mid-point was passed, only extraordinary efforts in family planning and tree planting can halt the system's complete collapse. Although these data were developed for the Sudan, the relationship between rapid population growth and dwindling firewood is common to most of semiarid Africa.

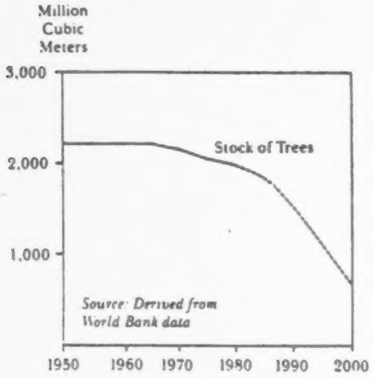
The evidence of unsustainable demand on the world's fishery resources is even greater. An assessment by the U.N. Food and Agriculture Organization (FAO) of the status of the 19 principal fisheries that account for most of the catch in the Northwest Atlantic gives an idea of the contemporary pressures on this resource base. The stocks of four have been depleted, and nine others are described as "fully exploited."

The Peruvian anchovy fishery, once the world's largest, provides a sad example of the costs of violating a sustainable yield threshold. The shifts in the current off



Source: Derived from World Bank data

Figure 1. Fuelwood Consumption and New Tree Growth in Sudan, 1950-80, With Projections to 2000



Source: Derived from World Bank data

Figure 2. Standing Stock of Trees in Sudan, 1950-80, With Projections to 2000

Peru's coast can directly and dramatically affect this fishery, yet it seems clear that overfishing from the mid-sixties throughout the early seventies doomed it to collapse even without any change in the current. During seven of the eight years from 1964 through 1971, the anchovy harvest exceeded 9.5 million tons, the level identified by a team of FAO fishery biologists as the maximum sustainable yield of the fishery. (See Figure 3.) The subsequent plummet to around 4 million tons, and then to just 1.5

million, makes it questionable whether these stocks will ever recover to the level of two decades ago.

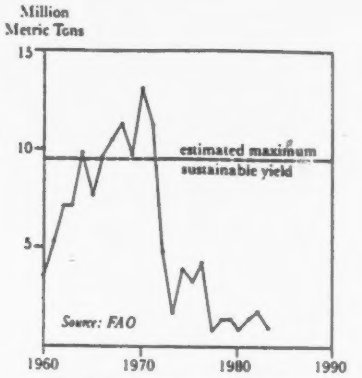


Figure 3. Peruvian Anchovy Catch, 1960-83

As early as 1973, C.P. Idyll, a leading fishery biologist, observed "there is some reason to fear that the world's greatest stock of fish may have been irreversibly damaged." Marine biologist David Fluharty believes a catch of 9.5 million tons is too high even for the fishery's good years, when the current is normal. And he suggests that the anchovy quota must be adjusted on a year-to-year basis according to conditions if its yield is to be maximized over the long term.

The collapse of this anchovy fishery, once the world's largest, cost Peru a key export commodity, the fish meal that once earned much of its foreign exchange. When this fishery was at its peak, in 1970, exports of its products earned Peru $340 million, roughly a third of its foreign exchange. The disappearance of this vitally needed source of hard currency contributed to the growth of Peru's external debt; in the mid-eighties over 40 percent of the nation's exports earnings are devoted to servicing outstanding loans. And the world has lost a major source of protein, once used to supplement grain in the rations of hogs and poultry.

In the tropics--such as parts of Africa south of the Sahara, Venezuela, the Amazon Basin, and the outer islands of Indonesia--fallowing is used to restore the fertility of the soil. In these areas where more nutrients are stored in vegetation than in their dense vegetative cover, soils of the humid tropics quickly lose their fertility. In response to these conditions, farmers evolved a system of shifting cultivation: They cleared and cropped land for two, three, or possibly four years and then systematically abandon it as crop yields decline. Natural vegetation soon takes over the abandoned field. Moving on to fresh terrain, farmers repeat the process. When these cultivators return to their starting point after 20-25 years, the soil has regained enough fertility to support crop production for a few years.

Mounting population pressures in the tropics are forcing shifting cultivators to shorten these rotation cycles. As this happens, land productivity falls. A 1974 World Bank study reported that in Nigeria "fallow periods under shifting cultivation have become too short to restore fertility in some areas." In some locales the original cropping cycle of 10-15 years has largely been reduced to 5. Since 1950, the cropped area in Nigeria has multiplied 2.5 times as new land, mostly marginal, has been added and fallow cycles have been shortened. Together these trends have offset the gains from the increased use of chemical fertilizer, the adoption of improved varieties, and the expansion of irrigation. Cereal yields are no higher than they were in the early sixties.

The Environmental Decline Syndrome

Accumulating evidence from ecology, agronomy, and hydrology indicates that sustained overuse of biological systems can set in motion changes that are self-reinforcing. Each stage of deterioration hastens the onset of the next. When destructive ecological change is coupled with rapid human population growth in subsistence economies, the stage for human tragedy is set.

World Bank energy analyst and ecologist Kenneth Newcombe has described how complex, interrelated systems unravel through several stages. His model, based on fieldwork in Ethiopia, portrays a cascading decline in biological and economic productivity triggered by loss of tree cover. According to Newcombe, as people seek new agricultural land, natural forests retreat before the plow. Without trees, mineral nutrients are no longer recycled from deep soil layers. As this nutrient cycle is breached, soil fertility begins to decline. In this first stage, wood supplies remain sufficient and the gradual erosion of cropland fertility is imperceptible.

As rural and village populations grow, markets appear for wood, both for construction and for household fuels. Cutting wood from remnant forests generates income for peasant families, who generally burn crop residues and animal dung in their own households. This in turn interrupts two more nutrient cycles: Removing crop residues and diverting dung from fields degrades soil structure and leaves the land more vulnerable to erosion. On sloping fields, annual soil erosion of 50 - 100 tons per hectare is common. The depletion of remaining forests then accelerates, and the loss of soil fertility begins to reduce crop yields.

Once nearby stands of trees are gone, dung and crop residues turn up on local markets where formerly only wood was sold. The steady loss of nutrients and organic matter from croplands severely limits crop yields and the ability of pastures to support livestock. A greater share of family cash income comes from the sale of dung than from that of food crops, for erratic crop yields prove barely sufficient even for subsistence.

Eventually, cow dung becomes the main fuel source in villages and thus the main cash crop from nearby farms. Rural families use crop residues for cooking and as fodder for their livestock, which can no longer be supported by grazing land. Pervasive topsoil depletion leaves farmers vulnerable to total crop failure during even routine dry seasons. In markets, both food and fuel prices rise rapidly.

When this final stage is reached in a subsistence economy, biological productivity is destined to collapse. Families can no longer produce enough food for themselves or their livestock, let alone for markets. A massive exodus from rural areas begins, often triggered by drought that could formerly have been tolerated. Famine is widespread; peasants' lack of purchasing power is compounded by absolute shortages of food at any price.

This model of an accelerating cycle of degradation is now being confirmed in portions of Africa. A joint U.N. Development Program/World Bank report points out that "this transition from the first to the final stage is in process right across Ethiopia and has reached the terminal phase in parts of Tigre and Eritrea." At a World Bank workshop in Botswana in March 1985, Kenneth Newcombe warned "There is evidence that [the final stage] has already been reached in some areas of several countries in Southern Africa and that virtually every country has areas that have reached [the point at which wood gathering has overtaken land clearing as a cause of deforestation].

The cascading effect Newcombe describes results from disruption of the self-regulating mechanisms of natural systems on which humans depend. The distinct stages of decline, and the event that pushes the system into instability, can be identified. Newcombe believes a critical point occurs in subsistence economies when more trees are cut for fuel than to make way for farmland.

New Accounting System Needed

The lack of a more complete economic accounting system has led many governments to adopt ill-conceived policies in the management and use of resources. It has permitted governments to focus on production, while largely ignoring the effects on the natural capital that makes production possible. In some instances the accounting gap has led to a more or less permanent loss of productive capacity. As each State of the World report documents, governments' shortsighted approach can be seen in one case after another: topsoil, water supplies, grasslands, forests.

Few annual accountings of soil formation and soil loss have been attempted, so national political leaders often do not know whether soils are being farmed or mined. Lacking data on soil erosion, governments cannot compute either the on-farm cost of soil loss or the off-farm costs of, for example, hydroelectric reservoir sedimentation. This in turn precludes complete cost/benefit analyses of soil conservation programs.

Resource accounting could help manage other resources intelligently as well. Water demands often exceed renewable supplies, leading to falling water tables, dwindling river flows, and shrinking lakes. Grasslands are being converted to desert in many areas of the world, but there is no effort to relate desertification to excessive livestock numbers and the loss of grazing capacity through overgrazing. And little accurate annual data on changes in forested areas exist, so in many situations trees are being felled faster than they are regenerating. Many countries simply do not know when they begin consuming the resource base itself. By the time it becomes physically obvious that they are doing so, it can be too late to act.

Changes in a few resource stocks are carefully monitored at the global level. For example, governments annually record the amount of oil produced and newly discovered, making it easy to determine changes in reserves. This information helps policymakers decide how rapidly the remaining oil reserves should be exploited. When aggregated at the global level, the sum of these national data provides information of great value to decision-makers everywhere, from individual consumers to political leaders.

Occasionally a country will institute a detailed accounting system when a resource is of particular value or when its stock is known to be diminishing and its loss would have potentially serious long-term economic consequences. It was precisely these concerns that led the U.S. Congress to pass the Resource Conservation Act in 1977, which required the Department of Agriculture to conduct a national soils inventory, focusing particularly on the relationship between soil erosion and new soil formation. The 1982 survey was the most exhaustive inventory of soils ever undertaken by any country. It provided U.S. soil scientists with precise data on "soil mining," the extent to which current food demand is being satisfied by sacrificing future land productivity.

A resource accounting system provides a means of incorporating the costs of "externalities" such as acid rain or soil erosion into decision-making. The goal is more intelligent policymaking and a more enlightened public and private management of resources. Much more than a resource accounting system is needed, of course, for intelligent environmental and resource management, but this is a necessary yardstick for measuring a system's effectiveness.

As noted earlier, when economists measure economic gains, they distinguish between reported and real growth. The first measures growth in terms of market value; the second uses a price deflator to exclude the effects of inflation. To more accurately measure progress in world agriculture, and to distinguish sustainable increases in food output from those that are not, a parallel ecological deflator is needed.

Under the existing economic accounting system, food production can soar even while the agricultural practices followed are consuming the resource base on which future production depends. Without an ecological deflator, intelligent long-term planning is difficult, if not impossible. When analyzing food production trends, for example, such a deflator would exclude food produced on cropland so prone to erosion that it will not sustain cultivation over the long term. Similarly, it would not consider food produced by the pumping of irrigation water that exceeds aquifer recharge.

Although production on recently plowed, highly erodible land cannot be sustained, it does boost harvests temporarily. As indicated, both the Soviet Union and the United States have been guilty of extensive overplowing. In fact, the 12-percent reduction in Soviet grain area since 1978 has also lowered economic losses from failed harvests and preserved the capacity to produce grass on land that would otherwise have become barren.

In the United States, national soil erosion surveys in 1977 and 1982 showed large areas of cropland losing topsoil at a rate that would eventually render it useless. With the establishment of the long-term conservation reserve in 1985, efforts to conserve soil and to manage production were, for the first time, integrated into a single program. The detailed data used by Congress to draft this cropland retirement legislation provide a basis for estimating the unsustainable share of U.S. output due to excessive soil erosion. If 40 million of the 45 million acres to be retired is in grain, and if the grain yield on this often inferior-quality land is two-thirds of the national average (1.2 tons per acre), then the unsustainable output amounts to 48 million tons.

In addition to expanding food production by mining the soil, some farmers are also mining underground water supplies, a process that yields dramatic short-run production gains. This depletion can take the form of using water from fossil sources or of withdrawing water in excess of recharge. The use of fossil water for irrigation often makes economic sense for individual farmers, though perhaps not for the taxpayers who are paying to idle adjacent rain-fed cropland under farm programs.

Exactly how much food production is based on unsustainable uses of water is not known, but the practice is sufficiently widespread that any global calculation of sustainable output would be misleading if it were not included. In the case of the Ogallala aquifer underlying much of the southern Great Plains, for example, calculating the unsustainable output means subtracting the difference of dryland yields from irrigated yields on the cropland it supports.

Where food output is expanding as a result of the overdrafting of rechargeable aquifers, converting to a sustainable basis means reducing output by an amount that will permit the water table to stabilize. A recent study by U.S. Department of Agriculture (USDA) economist Gordon Sloggett reports that the water table is falling by from six inches to five feet per year on over 14 million of the 36 million acres irrigated with groundwater. When this land eventually reverts to dryland farming or rangeland, as outlined in the USDA study, grain production will be reduced by 9 million tons.

Combining this figure with the grain output on highly erodible land shows that a total of 57 million tons of grain output per year--one-sixth of recent U.S. grain harvests--is unsustainable. This provides a way to compare unsustainable U.S. grain output to growth in world grain carry-over stocks. Between 1981, when world stocks totaled 227 million tons (57 days of world consumption) and 1986, when they reached a price-depressing 339 million tons (87 days' worth), carry-over stocks increased by 112 million tons, or 22 million tons per year. This is far less than the unsustainable grain output of 57 million tons produced per year in the United States alone.

If the 1985 farm bill provisions that restrict the plowing of highly erodible land had been in effect much earlier, the current grain surplus might never have developed. If water tables were not being drawn down for irrigation, then instead of building up 22 million tons of carry-over stocks each year between 1981 and 1986, the cushion would have been lower. Instead of having 87 days' worth of consumption in storage, reserves might have been closer to 50 days. And the world grain market would be far stronger. If the marginal land had not been plowed, of course, grain prices would have been stronger and farmers could have afforded to use more fertilizer, yielding some compensating increases in output.

Rapidly eroding land everywhere will eventually be withdrawn from crop production either because national governments follow the United States in diverting it to less eroding uses, such as grazing or firewood production, before it losses all its topsoil, or because it no longer supports agriculture. Recent dramatic examples of cropland abandonment can be seen in Ethiopia, where millions of people in the northern provinces have become ecological refugees, and in Haiti, where topsoil loss has contributed to the halving of per capita food production since 1950.

The use of this ecological deflator permits a comparison of the trends in sustainable food production with projected growth in world food demand. Unfortunately, existing data do not permit a precise worldwide measurement of the share of food output produced by the unsustainable use of soil and water resources. Calculations for other countries comparable to the ones made here ~~for the United~~ States would provide valuable insights into the long-term food prospect.

Indicators of Sustainability

Determining whether a given development strategy is likely to be sustainable can involve various indicators of sustainability. These would include indicators in population, agriculture, energy, and water, to cite a few. With population, the only workable, long-term goal in a society is population stabilization. Given finite space, there is a limit to the number of people that the earth can sustain. The bottom line indicator for population, of course, is zero population growth (ZPG). Some 13 countries in Europe have now reached ZPG. Equally useful as an indicator, however, is the achievement of replacement-level fertility, an intermediate goal that precedes the achievement of population stability itself.

With agriculture, the key is the availability of the basic resources used to produce food, such as soil, water, and energy. Soil scientists have developed a convenient technique for measuring the sustainability of agricultural practices depending on the rate of erosion. If the rate of erosion exceeds the natural rate of soil formation, the so-called tolerance factor, then the land's inherent productivity falls, often to the point where it is abandoned.

In the United States, the two natural resource inventories, in 1977 and in 1982, with the latter based on more than a million separate readings on erosion rates on the nation's farmland, provide detailed information on how much topsoil is being lost. As of 1985 a good one-third of U.S. cropland was losing topsoil at a rate that was undermining its long-term productivity. With this information and with broad-based public support, Congress passed the Food Security Act of 1985, which provides for converting up to 45 million acres of the highly erodible cropland to grassland or woodland before it loses all productive capacity.

With energy, the key indicator is the share of energy use derived from renewable resources. For most preindustrial countries, such as those in Africa where firewood is the principal energy source, the renewable energy share is quite high. The challenge, however, is for industrial societies to achieve a high share of renewable energy use. Among countries with well-developed industrial sectors, only Norway and Brazil have made the transition from the fossil fuel era to the age of renewables. (See Table 1.) In Norway, hydropower and, to a lesser degree, wood dominate national energy use. In Brazil, three sources of renewable energy--hydropower, firewood, which is used for smelting some 40 percent of the country's steel, and alcohol fuels--are the keys.

Table 1. Share of Total Primary Energy Requirements Supplied by Renewables in Selected Countries, 1984/85

	1984/85
	(percent)
Brazil[1]	59.0
Norway	61.1
Japan	5.1
Australia	9.4
Israel	2.3
Denmark	2.0
Greece	5.9
United States	7.4
West Germany	2.5

[1] Figures for 1983 and 1993.
SOURCE: See State of the World 1988, p. 80.

The efficiency of economic activity in a country is also a useful indicator of sustainability in a sense that the more efficient an economy is, the easier it is to obtain a larger share from renewable energy sources. The potential for achieving a

Table 2. Energy Intensity of Selected National Economies, 1973-85

Country	1973	1985	Change, 1973-85
	(megajoules per 1980 dollar of GNP)		(percent)
Australia	21.6	20.3	-6
Canada	38.3	36.0	-6
Greece[1]	17.1	19.8	+16
Italy	18.5	14.9	-19
Japan	18.9	13.1	-31
Netherlands	19.8	16.2	-18
Turkey	28.4	25.2	-11
United Kingdom	19.8	15.8	-20
United States	35.6	27.5	-23
West Germany	17.1	14.0	-18

[1] Energy intensity increased as a result of a move toward energy-intensive industries such as metal processing.
SOURCE: See State of the World 1988, p. 42.

more sustainable level of energy efficiency is evident in Table 2. Canada and the Soviet Union each use nearly three times as much energy per dollar's worth of goods and services produced as do Italy and Japan.

Another resource now being used unsustainably in many situations is water. The key here is typically the level of water tables: Where they are falling, water is being used in unsustainably large amounts. Eventually, use will have to come in line with aquifer recharge rates.

These are but a few of the many indicators that we need to use to assess the sustainability of development efforts throughout the world. Many more are needed. Only when these become an integral part of the formulation of development strategies will we know whether a given level or type of economic activity is sustainable.

A Sustainable Development Strategy

Putting the world on a sustainable development path will not be easy, given the environmental degradation and economic confusion that now prevail. Modest increases in energy efficiency investments or family planning budgets will not suffice. Getting on such a path depends on a wholesale reordering of priorities, a fundamental restructuring of the global economy, and a quantum leap in international cooperation on the scale that occurred after World War II. Unless the desire to ensure a sustainable future becomes a central concern of national governments, the continuing deterioration of the economy's natural support systems will eventually overwhelm efforts to improve the human condition.

A sustainable future requires that a series of interlocking issues be dealt with simultaneously. Stabilizing population will prove difficult until poverty is reduced. It may be impossible to avoid a mass extinction of species as long as the Third World is burdened with debt. Perhaps most important, the resources needed to arrest the physical deterioration of the planet may not be available unless the international arms race can be reversed.

If the world stays on the current path, crises will compound and accelerate until they overwhelm the capacity of institutions to respond. Time is of the essence: Species lost cannot be recreated. Soil washed away may take centuries, if not millennia, to replace even under careful husbandry. Once the earth gets warmer there will be no practical way of cooling it.

The formulation of a successful development strategy now depends on turning the development planning process around. Instead of beginning with economic criteria and then considering the environmental effects, the current situation--with local environmental support systems under excessive stress--requires that environmental criteria be taken into account first. With economically based development strategies leading to the destruction of natural support systems, there is now no alternative but to turn to a development strategy that is environmentally based, one that takes into account carrying capacity and sustainable yields of local environmental support systems. Once an environmentally sound development strategy is fashioned, then economists can look for attractive rates of return on investment within that framework. Any approach that does not take into account environmental criteria at the beginning is destined to fail. Indeed, in dozens of countries, such strategies are already failing.

Integral to a sustainable development effort is the meshing of population policies with environmental carrying capacities. Any plan that does not achieve a sustainable balance between people and local support systems will eventually collapse.

Sustainable development strategies depend more on organizational skills and less on capital than have the conventional approaches that are now failing in so many countries. With environmental deterioration undermining economic progress, the only successful economic development strategy will be one that restores the natural systems on which the economy depends. Reversing this decline will require carefully orchestrated national efforts to organize millions of people to plant trees, plan families, and build soil conservation terraces. An environmentally oriented effort to reverse trends will of necessity be people-based rather than capital-based. More capital will certainly be needed, much more. But the heart of the reversal strategy will be local mobilization of people.

There has been a widespread tendency within the international environmental community to focus on the environmental effects of particular projects within developing countries. There are two weaknesses to such an approach. One is that in focusing on projects one is dealing with the symptoms rather than the cause, which is the development strategy itself. The other is that in looking at individual projects, it is always easy to find negative environmental consequences. To oppose projects solely because they have environmentally negative effects is not necessarily responsible. What is needed is to look at the full range of opportunities, whether a project is to produce food or energy, or to develop water resources, to see which approaches are less environmentally costly and disruptive than others. What the international development community now needs from the environmental community is not simply attacks on individual projects, an activity that requires little skill, but rather a mature set of environmental principles to guide development planning.

A Sustainable Development Budget

To continue with a more or less business-as-usual attitude--to accept the loss of tree cover, erosion of soil, the expansion of deserts, the loss of plant and animal species, the depletion of the ozone layer, and the buildup of greenhouse gases--implies acceptance of economic decline and social disintegration. In a world where progress depends on a complex set of national and international economic ties, such disintegration would bring human suffering on a scale that has no precedent. The threat posed by continuing environmental deterioration is no longer a hypothetical one. Dozens of countries will have lower living standards at the end of the eighties than at the beginning. We can no longer assume that economic progress is automatic anywhere.

The momentum inherent in population growth, the forces of land degradation, and the changing chemistry of the atmosphere make it difficult to get the world on a sustainable development path. The inertia of our political institutions further complicates the task. The scale of these challenges and the urgency with which they must be addressed requires that they be moved from the periphery to the center of governmental agendas. I have outlined, albeit roughly, some of the steps needed to move the world off the road to continued deterioration and decline.

Investments beyond current spending are needed to stabilize topsoil, restore tree cover, get the brakes on population growth, and foster development of energy efficiency and renewable power sources quickly enough to slow the global warming. Table 3 provides some rough estimates of what is needed, bounded by wide margins of uncertainty. Much is omitted. Though based on specific experiences wherever possible, the investments suggested here are rough estimates. They are meant as a point of departure to stimulate comprehensive new thinking about what it will take to put the world on a sustainable path.

For the purposes of this analysis, these expenditures are treated as outlays only, but in reality they yield substantial net savings over the longer term. Each $1 invested in energy efficiency, for example, trims an estimated $2 from electricity bills. Similarly with family planning expenditures. In societies where population pressures are excessive, the relatively modest expenditure to avoid an additional birth is not only repaid several times over, it may be essential to reversing the decline in living standards that now plagues so many developing countries.

Table 3. Rough Estimates of Additional Expenditures to Achieve Sustainable Development, 1990-2000

Year	Protecting Topsoil on Cropland	Reforesting the Earth	Slowing Population Growth	Raising Energy Efficiency	Developing Renewable Energy	Retiring Third World Debt	Total
				(billion dollars)			
1990	4	2	13	5	2	20	46
1991	9	3	18	10	5	30	75
1992	14	4	22	15	8	40	103
1993	18	5	26	20	10	50	129
1994	24	5	28	25	12	50	144
1995	24	6	30	30	15	40	145
1996	24	6	31	35	18	30	144
1997	24	6	32	40	21	20	143
1998	24	7	32	45	24	10	138
1999	24	7	32	50	27	10	140
2000	24	7	33	55	30	0	149

SOURCE: See State of the World 1988, p. 183.

In addition, not all the expenditures outlined in Table 3 are "investments" in the strict sense; both soil conservation and population stabilization entail substantial recurrent costs, while spending for reforestation, energy efficiency, and renewable energy often represent one-time capital outlays that yield long-term benefits. The need for these investments does not end at the turn of the century, of course; rather, these priorities suggest a first substantial step toward restructuring the global economy along lines that will sustain progress.

The priorities in Table 3 share a common rationale in restraining carbon emissions, which they achieve in a variety of ways. Once erodible land is planted to grass or trees, for instance, it begins to absorb carbon from the atmosphere. Tree planting along the lines suggested earlier to supply fuelwood, lumber, and other forest products, and to stabilize soil and water regimes, will fix large quantities of carbon. This plus the planting of highly erodible cropland to grassland or trees--already under way in the United States--will fix close to a billion tons of carbon annually in the late nineties as the young stands mature. If lumber supplies from the new stands begin to reduce the need for cutting tropical rainforests in Southeast Asia and Africa, and if Brazil addresses the pressures on its Amazon rainforests, the loss of the earth's forested area could be halted.

If the forested area were to stabilize, it would reduce global carbon emissions by some 1.5 billion tons, more than a fifth of 1986 emissions. Meanwhile, the energy saved during the nineties through the proposed tripling of annual investments in energy efficiency, plus the new supplies from the doubling of annual investment in the development of renewable energy sources, could position humanity to move away from reliance on fossil fuels in time to minimize the disruption of the greenhouse effect. Whether these investments are made will depend on whether the threat of disruptive climate change is taken seriously by enough governments and whether these governments can work together to forge a common strategy to reduce global warming emissions.

In contrast to investments in energy efficiency, which would be concentrated in the industrial countries, those in the development of renewable sources of energy would be centered in the developing ones. Of the $30 billion now being spent annually on the development of renewable energy resources, two thirds is accounted for by hydropower, both large and small-scale. Since fuelwood is included in the reforestation investments, the outlays for renewable energy considered here are concentrated much more in electrical generation.

With existing and prospective energy technologies, humanity has far larger control over the rate of global warming than is commonly recognized. In addition to direct influence over the activities that produce carbon dioxide and the land uses that absorb it, accelerating progress toward population stabilization can reduce the numbers dependent on activities that can put climate stability at risk. The many factors that will shape future energy demand and the pattern of human activities in generations to come cannot be forecast with any certainty, but investing $150 billion per year in areas that broaden human options in the face of enormous uncertainty would be a well-justified down payment on sustainability.

Two barriers now stand in the way of ensuring that capital and political will are available on the needed scale. One is the unmanageable Third World debt that burdens the world economy. Another is the profound misallocation of capital implicit in global military expenditures of $900 billion each year. Unless these obstacles are overcome, funds on the scale needed to ensure sustainable development may not be available.

The external debt of the Third World, now totaling nearly $1 trillion, is growing at some $60 billion per year. Interest payments of some $80 billion per year have reversed the traditional net flow of capital from the industrial to the developing countries, leading to a net capital transfer from poor countries to rich of nearly $30 billion annually. Five years have passed since Third World debt emerged as a major international issue, and all the prescribed remedies have failed.

The economic and social progress that normally drives the demographic transition, leading to slower population growth, has been replaced in many countries by falling incomes. A world where living standards are continually falling in some regions and continually rising in others is an unacceptable prospect. In such a world, the cooperation needed to protect the global ozone layer, preserve biological diversity, or head off the global warming is almost certainly unattainable.

The economic advantages to the entire world of easing the stranglehold of external debt on international development and trade are evident. World Bank president Barber Conable has pointed out that the heavily indebted middle-income developing countries reduced their imports from $165 billion in 1980 to $110 billion in 1985. And this at a time when they normally would have increased their imports to $220 billion.

Recognizing that this situation is untenable, numerous experts have proposed ways of dealing with a Third World debt that has grown beyond all reasonable hope of repayment. One possibility would be to set up a fund, which might be called a Debt Retirement Fund (DRF), jointly managed by the International Monetary Fund and the World Bank, with the intention of retiring enough Third World debt to restore economic progress. The 1987 restructuring of the World Bank to enable its lending programs to incorporate environmental as well as economic concerns puts it in a position to provide leadership in formulating environmentally sustainable development strategies, without which the development effort will eventually fail.

Japan, with its enormous trade surpluses, could take the leadership in organizing such a fund with a major contribution of its own, much as the United States assumed the leadership in rebuilding war-torn countries after World War II. Canada took a bold step in this direction in late 1987 by cancelling the $581 million official debt owed it by African countries.

Debt relief would be handled by the fund on a country-by-country basis, going to those countries that could devise a credible sustainable development strategy, including efforts to increase energy efficiency and develop renewable energy sources, stabilize population, replant forests, and conserve soils. Once a country agreed to take the needed steps, the DRF would convene a meeting of private lenders and the relevant bilateral aid agencies of the donor countries.

For purposes of illustration, let us assume the government has an outstanding debt of $10 billion. Officials of the new fund would design a package that would include forgiveness of all or part of the debt held by the bilateral aid agencies of donor countries. The new fund would then agree to purchase a portion of the countries' external private debt at the market rate, which for many countries is now selling for 50 percent of face value. With $2 billion worth of its resources, it could purchase $4 billion worth of debt. If bilateral aid agencies collectively cancelled $1 billion worth of debt, only $5 billion of outstanding debt would remain, a level that the government in question should be able to manage.

Such a move would also restore confidence in the economy, encouraging both a return of capital and new investments by private lenders from abroad. The goal would not be to eliminate a country's outstanding debt, but to reduce it to a level that would permit the restoration of economic progress.

Estimating how much debt reductions it will take to restore economic progress is not easy, particularly since the debt is continually growing. For our purposes, it is assumed that it would be necessary to eliminate the annual net outflow of roughly $30 billion, replacing it with a net inflow of at least the same magnitude. Even if the $1 trillion debt does not rise further, it will require some $800 billion in interest payments in the nineties. The estimated capital needed to reduce the debt to manageable levels in the Third World during the next decade could be as much as $300 billion, enough to retire $600 billion of debt discounted at 50 percent of face value.

The estimates of debt retirement round out the principal components of the overall expenditures needed to get the world onto a sustainable development path. As indicated in Table 3, rough estimate of the investments needed to reduce Third World debt to a manageable level and to protect environmental support systems and stabilize climate is roughly $45 billion in 1990, with an increase to nearly $150 billion per year by the mid-nineties.

Defining Security in Environmental Terms

For four decades, security has been defined largely in ideological terms. The East-West confrontation has dominated international affairs, setting priorities in the use of public resources. It has spawned an arms race and put the world economy on a more or less permanent war footing. Although this deadlock and the ever present threat of nuclear war continue to threaten human security everywhere, the deterioration of the biosphere now also threatens the security of not only this generation but of generations to come. Responding effectively to the second threat may well depend on reducing the first.

The needed capital could be obtained either by increasing taxes or by reordering existing expenditure patterns. It may make more sense for most governments to divert resources from the military sector than from elsewhere for two reasons. First, most governments will be reluctant to reduce expenditures in other major sectors, such as health or education. Second, and perhaps more important, unless international tensions can be reduced, the cooperation needed to restore the world to a sustainable environmental and economic path is not likely to be forthcoming.

In a business-as-usual world, global military expenditures would likely continue at something like the $900 billion annually, where they seem to have leveled off in recent years. If governments decide to shift resources from the military sector in order to invest in sustainability, then the pattern of priorities might resemble that in Table 4. A reduction in military expenditures of nearly one sixth could rejuvenate moribund national economies. The Soviet Union has indicated interest in a plan to shift resources from its military sector to aid the developing countries.

Table 4. Two Possible Global Security Budgets, 1990-2000

	Global Security Defined in Military Terms	Global Security Defined in Sustainable Development Terms		
Year	Current Military Expenditures Continued	Military Expenditures	Expenditures to Achieve Sustainable Development	Total Security Expenditures
		(billion dollars)		
1990	900	854	46	900
1991	900	825	75	900
1992	900	797	103	900
1993	900	771	129	900
1994	900	756	144	900
1995	900	755	145	900
1996	900	756	144	900
1997	900	757	143	900
1998	900	762	138	900
1999	900	760	140	900
2000	900	751	149	900

SOURCE: See State of the World 1988, p. 186.

Such a shift in expenditures from the military sector to sustainable development activities is not without precedent. China has followed precisely this path over the past decade. A decade ago, the government spent nearly 13 percent of its gross national product on military purposes, one of the highest in the world. Since then, a one-tenth reduction of military expenditures in a rapidly expanding economy has reduced the military share by nearly half, dropping to an estimated 7 percent in 1986. At the same time, investments in family planning, reforestation, and food production have expanded dramatically. These shifts, accompanied by economic reforms, have helped China dramatically lower its birth rate and raise per capita food production by half within a decade. It is precisely such a combination that can yield the greatest progress for the rest of the world during the years ahead.

The bottom line for U.S. policy, domestic and foreign, is how to get the world onto a sustainable development path. U.S. foreign assistance policy, including both the programs of the Agency for International Development and our influence as a major lender on such institutions as the World Bank, is a powerful instrument for achieving environmentally sustainable progress. The alternative is economic deterioration, social disintegration, and political instability of the sort we are now seeing in parts of Africa and Central America.

Testimony by Harold J. Corbett
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Before the U.S. Senate Foreign Relations Committee
Subcommittee on International Economic Policy, Trade
Oceans and the Environment
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Mr. Chairman, members of the Subcommittee, my name is Harold Corbett, and I am Senior Vice President for Environmental Safety and Health for Monsanto Company in St. Louis, Missouri. I thank you for the opportunity to testify today on environmentally sustainable development. I applaud your efforts to develop foreign assistance programs in this area that are broad based and which move away from dependence upon short term, nationalistic approaches.

Short term perspectives are not sufficient to meet the challenges we face. The trend toward global warming; destruction of forests, especially the tropical rain forests; the continuing increase in desertification; overpopulation of low resource countries; and ozone depletion in the upper atmosphere, are examples of pressing problems that demand different and more aggressive actions than we are taking at present.

Taken separately, these problems are desperately serious. Considered collectively, they are symptoms of a true worldwide environmental crisis. I would add one more symptom of this environmental crisis, and that is the institutionalized poverty in many parts of the world, poverty that is not only worsening these environmental problems, but in many cases is a primary cause of them.

Because the underlying problem is an economic one -- that is, too few resources in the developing countries -- the principal solution must be sustained economic development. This was the essential finding of the World Commission on Environment and Development. This, of course, is contrary to what some people in the United States believe, as they see economic development as a principal cause of environmental problems.

Throughout the rest of the world, however, economic development is seen as vital to solving environmental problems. The key, as the WCED report notes, is sustainable economic development -- and not the short-range consumption of natural resources which creates long-term poverty.

It's important to note that the U.S. approach to environmental protection is not a suitable model for developing countries. Only a very wealthy country can afford the poorly focused and extremely expensive approach to environmental regulations which prevails in the United States. Instead, we must look to other models if sustainable economic development is to become a reality for developing countries.

You asked me to comment on what actions Monsanto and other companies are taking to encourage responsible environmental actions on a worldwide basis. I will give a few examples.

- First, we ensure that we have one set of acceptable standards or guidelines for our manufacturing operations in all countries throughout the world. We've implemented these guidelines, we monitor compliance and we encourage long-term environmental protection to the same degree at all Monsanto facilities regardless of local customs.

- Monsanto was an active participant in the WICEM Conference in 1984 from which sprang the International Environmental Bureau, an organization affiliated with the ICC, which has as its goal the transfer of industry environmental technology and expertise to needy countries.

The IEB is helping to focus attention on sustainable economic development. For example, IEB members met to discuss the WCED report and determined how best industry can contribute to addressing the issues involved.

- As another example of successful industry initiatives, a group of U.S. food production, processing and marketing companies have formed an organization called Food Industry Crusade Against Hunger, whereby they are providing grants to projects in developing nations that help increase the ability of people to feed themselves. By design, these projects are sustainable, easily adaptable to a number of different countries, and implemented through existing organizations. They range from assisting women's vegetable production in The Gambia to helping establish a thriving network of fish farms in Burundi. Increasing food production without environmental degradation must be a major part of any comprehensive attack on worldwide environmental problems.

These varied examples of private sector initiatives have important elements in common: they are developing new tools and programs, outside of traditional approaches; they are sustainable and can be replicated; they avoid the problems of providing assistance through cumbersome bureaucracies; and they are aimed at projects where success can be measured in terms of actual impact upon people.

To summarize my recommendations for the Subcommittee to consider in developing assistance programs:

1) Models other than those used in the developed, industrial nations must be used;

2) Assistance should be targeted toward programs which avoid the creation of new bureaucracies or that might require an infrastructure which does not exist;

3) Industry should be encouraged to expand its efforts in promoting sustainable development; for example, suggestions and efforts to encourage such entities as the World Bank and International Monetary Fund to connect funding to sustainable

development could play an important role. In this connection, the International Environmental Bureau and the World Bank are sponsoring a conference in June to encourage greater environmental awareness and explore new approaches for industry and World Bank cooperation on environmental matters.

4) Last, we recommend that U.S. foreign assistance focus upon projects which incorporate both sustainable development and eventual independence of aid. Unless both elements are considered, the prospect of long term improvement is dim.

I'll be glad to answer any questions you may have.

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STATEMENT of the UNITED STATES COUNCIL FOR INTERNATIONAL BUSINESS

The United States Council for International Business appreciates the opportunity to present its views on sustainable development to the Senate Foreign Relations Subcommittee on International Economic Policy, Trade, Oceans, and Environment.

The United States Council is a business policy-making association dedicated to promoting an open system of world trade, finance, and investment. As the U.S. affiliate of the International Chamber of Commerce (ICC), the Business and Industry Advisory Committee (BIAC) to the OECD, and the International Organization of Employers (IOE), the U.S. Council represents American business interests in the major intergovernmental institutions and to the Executive and Legislative branches of the U.S. government. Our membership consist of some 300 multinational corporations, industry associations, and law firms, representing a broad range of industries.

The U.S. Council's Environment Committee is concerned primarily with international environmental policies and regulations that could affect the way U.S. companies operate overseas. In this regard, we have given careful attention to the issue of sustainable development, most recently as presented in the report of the World Commission on Environment and Development. In addition to commenting on the final report (Attachment I), the U.S. Council served as the focal point for U.S. industry comments to William Ruckelshaus during the drafting process.

The U.S. Council supports the concept of sustainable development and agrees with the importance placed on industrialization in the development process. In fact, sustainable development will not occur without industry participation for only industry and private enterprise can provide the engine for growth that underlines the very notion of sustainable development. Industry has made, and continues to make, major contributions to sustainable development. We believe very strongly that industry, because of its experience with and direct relationship to sustainable development, should be a part of any discussion on the topic. A cooperative effort is needed with full industry participation to insure not only that development occurs, but that it occurs in a sound manner. Sustainable development is best achieved through education and awareness of all parties to avoid having to correct mistakes after the fact. We view these hearings as an opportunity for industry to focus attention on some of its own programs and to make government officials aware of the expertise available to it from the private sector.

While many companies and industry associations have developed sustainable development programs, this submission will focus only on the activities of industry through the U.S. Council and its international affiliates. The U.S. Council is not involved in individual company or country programs. It does provide a forum in which business representatives from all sectors can meet with their U.S. and international counterparts to exchange views on environmental issues and developments and work together to formulate environmental policies.

One important result has been the development by industry of voluntary environmental codes of conduct. The ICC Environmental Guidelines for World Industry (Attachment II) are a basic code applicable to industry and other business activity in all countries and sectors. They call for a high standard of commitment to environmental requirements on the part of industry. They also point out that a constructive contribution from industry depends to a large extent upon appropriate regulations and governmental policies. The Guidelines are endorsed by numerous international organizations as well as by ICC member corporations in both developed and developing countries. The BIAC Guides for Manufacturers and Users of Chemicals (Attachment III) were also compiled by industry and are intended to promote the safe use, handling, and disposal of chemicals in importing countries.

U.S. Council member companies have also provided input to intergovernmental organizations in the formulation of international regulations and codes of conduct, such as the U.N. London Guidelines on Exchange of Information on Chemicals in International Trade and the OECD Recommendation on Information Exchange Related to Export of Banned or Severely Restricted Chemicals. These codes, supported by industry, provide for worldwide exchange of information on banned and restricted chemicals and serve as models for environmental regulations and policies in individual countries. Similarly, the Council has provided technical experts to the OECD for its work in controlling transboundary movement of hazardous wastes and prevention of accidents at hazardous installations, and has worked with the Chemical Manufacturers Association in their program with UNEP to develop community action/emergency response guidance.

The U.S. Council was represented at the 1984 World Industry Conference on Environmental Management (WICEM), sponsored by UNEP and the ICC. The Conference included over 500 government, industry, and public sector participants, representing over 70 countries. WICEM led to regular meetings between small groups of ministerial-level officials convened by UNEP and of business leaders convened by the ICC jointly to develop sound and realistic environmental management programs. The Conference led to the creation of the International Environmental Bureau (IEB), an international trans-industry clearinghouse for environmental management information. In addition to its clearinghouse function, the IEB will cooperate with UNEP to set up development workshops for industry in several developing countries and is exploring possible joint projects with the World Bank.

The U.S. Council has promoted industry experience with sustainable development by sponsoring seminars for the public and private sectors. In 1986 the Council hosted a seminar in New York for the U.N. and other interested parties entitled International Education and Training Programs: The Development Impact of U.S. Multinational Corporations.

Industry representatives discussed their company programs on improving health practices, occupational and environmental safety, transfer of technology through language and technical training, developing and transferring agricultual technology, and transferring management skills and developing a leadership cadre. In March of this year the U.S. Council cosponsored with the American Chamber of Commerce in Belgium a seminar for environmental officials in Europe on industry experience with environmental integration. Topics discussed were worker health & safety, environmental protection, waste management, and community awareness programs. The purpose of such seminars is to provide models to encourage similar programs by other companies and organizations, such as undertaken in Brazil by the World Environment Center on emergency training, and to explore the possibility for collaborative efforts with host government and intergovernmental bodies.

While we do not at this time advocate inclusion of specific environmental guidelines in U.S. assistance programs, we believe that it is essential that the environmental impact of U.S.-assisted development projects be closely reviewed. We would urge that through its aid programs the U.S. government place greater emphasis on helping countries develop the infrastructure and expertise necessary to make informed decisions concerning the effects of development on the environment.

We also urge the Committee to continue to solicit private sector comments on sustainable development and hope that the Committee will remain informed of industry activities in this area and encourage industry to continue and expand its programs.

The U.S. Council appreciates the opportunity to submit comments for this hearing. We hope that our comments will be helpful to the Committee as it considers a U.S. role in promoting sustainable development.

Attachment I

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United States Council for International Business

Serving American Business as U.S. Affiliate of

The International Chamber of Commerce
The International Organisation of Employers
The Business and Industry Advisory Committee to the OECD
The ATA Carnet System

U.S. Council Statement on Our Common Future

The U.S. Council views the report of the World Commission on Environment and Development as a positive step towards dealing with the problems of sustainable development. Although many of the issues raised are not new, the report does a thorough job in analyzing the interwoven social, political, economic, and technical nature of economic growth. It also correctly points out the importance of industrialization to the development process.

The Council supports, as we believe governments, environmentalists, and other industry groups do, the overall goals of the Report, namely economic growth with environmental protection and planning. We would point out, however, that there are different strategies for achieving these goals, and that while the Council agrees with certain of the Report's recommendations, there are other proposals which the Council believes are detrimental to development, and over which we must voice our concern.

The Council also questions some of the data on which the Commission based its Report and its recommendations. The Report accepts as scientific fact information on acid rain, ozone depletion, and global warming, when this data is still incomplete and controversial. The Report also cites studies and documents, such as the U.N. Consolidated List of 500 banned or severely restricted chemicals or chemical products; the NRC/NAS report on the lack of complete and adequate testing of chemicals; and the WHO estimate of deaths and poisonings from the use of pesticides, all of which industry regards as not complete or misleading.

The Council believes that the Report at times takes an excessively bureaucratic approach towards industry. For example, we do not support the proposal to strengthen UNEP's role as a supervisory body. We believe that industry must continue to build on its relationship with UNEP, but that expanding UNEP's authority will only lead to unwarranted regulations and bureaucracy. Bilateral and multilateral structures and concepts already exist, including those under the auspices of UNEP. It may be useful instead to reexamine these bodies and agreements to determine how they can be used more effectively.

Similarly, we question the need for a special authority for a centralized environmental impact and risk assessment program. While supporting the idea of environmental assessment, the Council believes such a program would be undesirable, given the highly sophisticated and dynamic nature of technological processes. This is more properly the function of individual nations.

Reference is made in several chapters to the possibility of adopting a prior informed consent procedure. Prior informed consent would require an exporter to obtain, via his own government through bureaucratic notification and export control procedures, the formal and explicit consent of the government of an importing country before export of a "dangerous" chemical could take place. The U.S. Council is opposed to this concept on the basis that it is an unnecessary export control mechanism which will not add to the health and safety of countries that lack the infrastructure to respond in a timely fashion.

In addressing the issue of environmental standards and regulations, the Report fails to recognize the need for countries to adopt technology that is appropriate to their individual situations, including their current state of environmental quality. For example, developing countries do not necessarily need to or cannot adopt the kinds of environmental controls used in industrialized countries. Although all nations should be encouraged to impose necessary controls, sustainable development of the type advocated by the Commission requires the adoption of technology that is appropriate and affordable for the country in question.

The Report regards new technology as a potential risk and something that should be closely monitored and regulated, the inference being that it can be harmful to the environment and/or controlled by a few multinationals. The international patent and trademark system is viewed as an obstacle to technology transfer, particularly where food security is concerned. On the contrary, the system is indispensable in encouraging technological innovation and improvement, including that directed towards environmental goals.

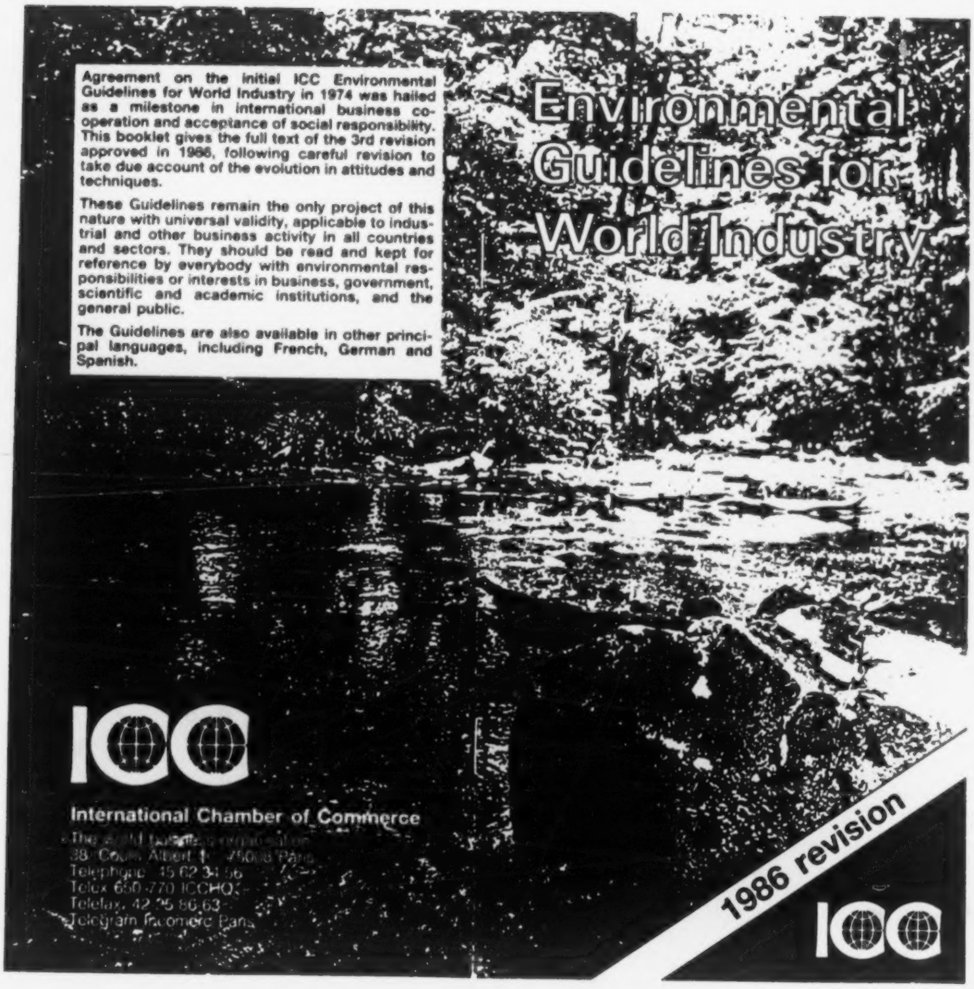
The U.S. Council is pleased with references made to efforts by industry to self-regulate through the development of voluntary guidelines and company programs. We would like to see more emphasis on the content and value of these programs and would stress that industry, having the best understanding of its own technologies, is often in a better position to regulate itself and help develop national standards than an outside source would be.

The U.S. Council supports the proposal to establish international panels of scientific support and peer review, and, where appropriate, would like to contribute to these panels. Qualified hazard assessment and scientific input, and peer review, have been main driving concepts of the American Industrial Health Council (AIHC) for many years, and much progress has been made in the U.S. to that end.

Industry has also been at the forefront in developing programs that will assist companies in maintaining safe production, use, and disposal of their products. For example, the Chemical Manufacturers Association's Community Awareness and Emergency Response (CAER) program has enabled communities in the U.S. to better respond to chemical emergencies and has helped keep the public better informed about hazardous chemicals in their communities. The CAER program is now being examined by UNEP to see if it can be used on an international basis. Voluntary programs on waste management are also underway.

The Report ascribes a number of responsibilities to multinational corporations. Industry, over the years, has made major contributions to sustainable development and will continue to do so, however, the U.S. Council believes that governments and trading partners must share in this effort. To that end, we look forward to future opportunities for cooperation.

Attachment II



Agreement on the initial ICC Environmental Guidelines for World Industry in 1974 was hailed as a milestone in international business co-operation and acceptance of social responsibility. This booklet gives the full text of the 3rd revision approved in 1986, following careful revision to take due account of the evolution in attitudes and techniques.

These Guidelines remain the only project of this nature with universal validity, applicable to industrial and other business activity in all countries and sectors. They should be read and kept for reference by everybody with environmental responsibilities or interests in business, government, scientific and academic institutions, and the general public.

The Guidelines are also available in other principal languages, including French, German and Spanish.

ICC

International Chamber of Commerce

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Environmental Guidelines for World Industry

1986 revision

ICC

Introduction

The International Chamber of Commerce has played for many years a major and pioneering role in setting forth international self-regulatory rules in many business sectors. In the field of environment the ICC initially published the Environmental Guidelines for World Industry in 1974, and issued an updated version in 1981. However, world industry is conscious of the evolution and changes in the situation and in the problems regarding environmental matters which have occurred, and recognizes the important role it has to play in the light of such evolution. This is evidenced for example in the World Industry Conference on Environmental Management (WICEM) held in November 1984. The Conference Declaration recognized the contributions made by industry towards creating a better environment achieved in part through increased cooperation with governments, governmental and non-governmental organizations, and the general public.

The ICC has prepared the following revised Environmental Guidelines, and presents them to governments and companies for implementation and to the public for information. Industry's commitment to the objectives adopted by the world community of nations in regard to the protection and progressive improvement of the human environment is as strong as ever. Realizing these objectives requires concerted effort by all parts of society and also calls for realism in policies, in the choice of priorities and of time scale, and in the assessment of economic and other costs in reaching specific environmental objectives.

Since the publication of the first edition of its Guidelines in 1974, industry has accomplished important improvements in its operations to abate and prevent adverse environmental effects. Nevertheless industry realizes that its operations continue to have a substantial though by no means exclusive influence on the quality of environment. At the same time, it should be recognized that industry makes a major contribution to the quality of life by providing a regular flow of goods and services.

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38, Cours Albert 1er, 75008 Paris
July 1986

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Publication N° 435

These Guidelines call for a high standard of commitment to environmental requirements on the part of industry, but also make it clear that a constructive contribution from industry depends to a large extent upon appropriate regulations and governmental policies and indeed upon a parallel contribution from all sectors of the community. For example, the development of alternative sources of energy and the inherent consequences for the environment is one of the issues which will call increasingly for consultation between government and industry.

The Guidelines are broad in their scope and obviously cannot cover every situation which may arise. They have been framed in a way that makes them applicable to industry in developing countries as well as to industry in the most industrialized areas of the world, to both private and state owned enterprises and to multinational as well as national (domestic) enterprises. "Industry", to which the Guidelines are addressed is by no means manufacturing industry alone. The Guidelines are equally applicable to the operations for example of the transport industry, the tourist industry, public utilities or agriculture.

There are many references in the Guidelines to pollution and here again a wide interpretation should be given whenever the context permits; noise, odour and visual pollution and other environmental nuisances are all among the forms of pollution which industry and the whole community must seek to prevent and abate in their concerted effort to ensure a satisfactory environment.

Since the first edition of the Guidelines, occupational aspects have become part of the broader environmental issue. Although the Guidelines are not designed to deal with these aspects, industry nevertheless recognizes their importance.

General Principles

1. Virtually all human activities, both industrial and non-industrial, affect the environment, may lead to pollution, and may have an impact on human health and well-being.

The universal quest for higher living standards, together with the rapid growth and urbanization of world population and the consequent greater dependence on modern industry, requires that continuing attention be given to the consequences of man's activities on the environment.

2. The maintenance and improvement of environment quality to the extent consistent with the fulfillment of other human needs, is both essential and feasible; while it entails challenges and often burdens on many elements of society, it will bring benefits to society as a whole.

3. In devising environmental protection measures full account should be taken of the following important factors:

a) the importance of protecting human health;
b) the need to maintain species diversity and the balance of ecological systems, where land, water and air are concerned;
c) the need to develop alternatives to non-renewable resources;
d) the cumulative effects on the environment of harmful wastes and other nuisances produced by the various industrial operations;
e) the potential effects of products on the environment;
f) the existence and impact of transboundary pollution;
g) the law of diminishing returns, i.e. inevitably a point will be reached where the incremental benefit derived will be less than a given increment of resource expended;
h) the need to minimize risks to the environment arising out of industrial activities, bearing in mind that man is always exposed to some degree of risk, whether the activity in which he is involved is industrial, leisure, domestic or other.

4. In the field of environmental protection, industry has both economic and social responsibilities.

5. While social and environmental considerations are of great importance, economic constraints will always exist, and the aim must be to arrive at a proper balance between these factors. Indeed, industry will conduct its operations in an environmentally sound manner, while fulfilling the imperative need for economic growth.

6. Improvements in the protection of the environment are best achieved by applying sound environmental management practices and the appropriate improved and tested technology. Indeed, to a large extent it will be through new and cleaner technology, balanced with natural regenerative forces, that environmental protection will be achieved.

7. In order to attain worthwhile results within a reasonable time-frame and at acceptable cost priority should be given to measures for the protection or improvement of the environment that have the highest ratio of community benefit to cost. All environmental policies and regulations require consideration of such cost/benefit analysis, in accordance with the recommendations issued by the ICC in 1980 (Publication N° 361, "Cost-benefit analysis of environmental protection measures").

Guidelines for Industrial Operations

8. In the environmental context as in others, industry, being an integral part of the community, should always seek to operate responsibly, taking all reasonable precaution so that its operations and products are consistent with considerations of human health, property, amenities and environment. In the absence of legislation, industry should take independent and responsible action based on its know-how and technology to achieve environmental protection within reasonable economic bounds.

9. Industry has its particular environmental responsibilities in terms of such factors as plant location and design, process selection and product design, environmental pollution, harmful radiation, vibration and noise controls, waste disposal, occupational health and safety aspects and long-range planning.

10. In the planning and management of its operations industry should, in addition to the usual elements, take into account the impact on the human environment, the vulnerability of natural ecological systems, and the challenge created by the finite character of the earth's non-renewable resources. Industry should therefore regularly review its production operations, products, wastes and procedures for the handling of materials in order to :

- minimize the possibilities of pollution ;
- apply the most appropriate pollution prevention and/or abatement techniques ;
- conserve non-renewable resources, including energy ;
- develop alternatives to maximize the recycling or re-use of its wastes ;
- develop and utilize cleaner technologies ;
- ensure that every effort is being maintained to conserve water especially in areas subject to drought or critical balance of supplies.

Any measures envisaged must of course also be technically feasible, economically acceptable and consistent with national and/or regional requirements. Industry should consult with the suppliers of its basic raw materials to ensure that, as far as can be foreseen, these will be available in the future, and that the appropriate steps are taken to protect the environment in the process of extraction and to renew these resources whenever possible.

11. In the design of its installations, in the handling of raw materials and products, and in the operation of its processes, industry should also pay full attention to health and safety matters within the working environment.

12. In the design and development of new products, industry should assess potential adverse environmental effects of these products when used for those purposes for which the product is supplied either by a consumer directly or when converted or incorporated by other industries into different products. Responsible efforts should be made to minimise any such effects.

13. Industry should provide advice to its customers on conservation re-use and recycling, handling, transporting, using and disposing of its products. This should encourage the consumer to exercise his responsibilities once he takes possession of the product, in full cognizance of its potential impact on the environment and human health.

14. Each company's management should promote among its employees at all levels an individual sense of environmental responsibility and should educate and encourage them to be alert to potential sources of pollution and to sound resource conservation measures within their operations.

15. Industry has a responsibility through its association channels and at company level to support research into the prevention of adverse environmental effects and into the causes and effects of discharges on ecological systems and on public health, both nationally and internationally.

16. Industry should develop, through its association channels and among individual companies, the exchange of technical information on pollution abatement and conservation methods, subject to commercial confidentiality, proprietary rights and patent protection considerations, where applicable.

Guidelines for Relationships between Industry and Public Authorities

17. The wide range and complexity of problems raised by environmental protection measures calls for close and meaningful contact and consultation between industry and government – locally, nationally, and internationally – in the search for the most appropriate solutions. This consultation should include review of the legislative and regulatory frameworks, and their content, for achieving this goal.

18. Industry supports legislation to achieve environmental improvement which takes into account the regenerative capacity of the environment, relevant socio-economic factors and local requirements, and which is based on a sound appreciation of technological possibilities.

19. Industry has a responsibility to provide public authorities with available relevant information about emissions, effluents, wastes and other environmental nuisances, including potential adverse health and environmental impacts.

20. Industry should provide public authorities with relevant scientific information and cooperate with them to establish environmental standards and objectives on a sound scientific basis, taking into account confidentiality considerations.

21. Environmental legislation/regulations should be so devised as not to distort international trade relationships and not to create non tariff barriers. Provisions should be made within existing mechanisms for international consultations at intergovernmental level and between governments and industry to deal with any trade distortions associated with environmental measures.

International harmonization of environmental programmes to address global issues (such as the greenhouse effect, ozone layer, etc) should be pursued. Regional problems may in certain circumstances require further close co-ordination (including harmonization of requirements) eg. for transboundary pollution avoidance and any other measures necessary for the protection of health and the environment.

22. Any regulatory approach should be based on the establishment of a clearly defined legislative framework, which permits flexibility in reaching the desired goal, rather than on the specification of technologies and the composition of materials to used, i.e. incorporation of performance objectives rather than design specifications.

Environmental regulations and standards should also be assessed periodically to determine whether they are having the anticipated desired effect on the environment.

23. Industry should be given adequate notice of, and an opportunity to participate in, intended changes in environmental policies, objectives or regulations which might affect its operations. Where changes are adopted industry must be given a reasonable period of time to adapt to them.

24. When siting and designing its installations, industry should be prepared to provide information on steps it is taking to protect the local environment and meet safety requirements. In any public debate on issues such as siting, industry should be given an adequate opportunity to state its case. The aim must be to reach solutions mutually acceptable to industry, the relevant authorities and the community.

25. Industry and public authorities should jointly work out contingency plans to deal with pollution emergencies and accidents. In this regard, industry should inform the relevant authorities about the known and significant hazards of its operations, so as to enable them to act quickly and properly.

Guidelines for Industry/Society Relationships

26. Industry should provide input to balanced and informed public discussion of environmental problems and should support efforts to place in proper perspective the comparative significance of industrial and non-industrial sources of pollution.

27. When developing and implementing environmental protection programmes, industry should take into account the opinions of the general public, scientific bodies, and other concerned organizations and, where appropriate, take the lead in raising the level of awareness and understanding of these programmes.

28. Industry should be prepared to supply information about the possible environmental consequences of its operations, products and new developments, including socio-economic implications.

29. Industry should continue to take energetic steps to ensure that its very substantial achievements in matters of the environment are brought to the notice of the public in general.

ICC

Serving world business

The International Chamber of Commerce (ICC) is the world business organization. It acts to promote the greater freedom of world trade, to harmonize and facilitate business and trade practices, and to represent the business community at international levels. Paris based, the ICC is represented by National Committees in 58 countries and also has members in nearly 50 others.

Environment Commission

The ICC Commission on Environment was responsible for preparing the Environmental Guidelines for World Industry. Founded in 1972, its membership in 1986 comprised some 55 business leaders and experts from 26 countries. The Commission meets twice every year. It has particular responsibility for determining ICC policy on environmental questions, notably as regards initiatives and projects undertaken by intergovernmental organizations.

International Environment Bureau (IEB)

The IEB was established by the ICC in 1986 as an international trans-industry clearing house on environmental management information. It operates as an ICC specialized division equivalent to the International Bureau (IMB) which combats the maritime fraud problem, and the Counterfeiting Intelligence Bureau. Membership of the IEB is distinct from that of the ICC itself. All requests for information should be addressed to: the Director, IEB, 61 Route de Chêne, CH-1208 Geneva (Tel.: 86 51 11, Telex: 86 57 19).

ICC Publications

Through its affiliate ICC Publishing S.A., the ICC provides a broad range of publications on both policy and practical/technical questions. A key publication in the environmental area is:

The Spirit of Versailles : the Business of Environmental Management

The first World Industry Conference on Environmental Management (WICEM) held in November 1984 in Versailles, France, has been called the most significant landmark among international gatherings in this area since the United Nations Conference on the Human Environment (Stockholm, June 1972).

WICEM provided a forum for more than 500 leaders of industry, government and other environmental groups from 72 countries to seek cooperation in improving environmental quality management while at the same time pursuing economic growth and development. WICEM was sponsored by world industry and the United Nations Environment Programme (UNEP) in cooperation with the ICC.

This 400-page book is both a comprehensive record of the unique event and a report on present environmental management practices and challenges. It includes over 600 names and addresses of organization/individuals directly concerned with environmental issues.

ICC Publication 425.

Attachment III

BIAC

guides for manufacturers and traders exporting chemicals

Preface

This document presents the "Guides for Manufacturers and Traders Exporting Chemicals", which have been prepared by BIAC, the Business and Industry Advisory Committee to the OECD.

BIAC was constituted in 1962 as an independent organisation and was recognized by OECD[*] as a consultative body representing business and industry.

The members of BIAC include the national industrial and employers' organisation of the 24 OECD Member Countries.

In the framework of its normal consultative status vis-à-vis the OECD, BIAC's role is to provide OECD and its Member Governments with the benefit of constructive comments and recommendations based on the practical experience of the business community in the OECD area. Over the past 23 years, BIAC has been presenting, either in response to OECD requests or on its own initiative, the views of the international business community to the OECD on a large variety of matters of mutual concern.

In the course of its advisory work on chemicals, the BIAC Committee on Chemicals suggested that it elaborate and publish the present Guides as a supplementary contribution to work being carried out by governments in the OECD Chemicals Group and Management Committee of the Special Programme on the Control of Chemicals.

[*] The Organisation for Economic Co-operation and Development (OECD) was set up under a convention signed in Paris on December 14, 1960. The Members of OECD are Australia, Austria, Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States of America. The Commission of the European Communities takes part in the work of the Organisation and Yugoslavia has a special status

As the following Introduction to the Guides points out, the need to promote the safe use, handling and disposal of internationally traded chemicals is a matter of international concern. The OECD Council Recommendation on Information Exchange Related to Export of Banned or Severely Restricted Chemicals [C(84)37(Final)] is one example of the recognition being given by governments to this issue. This Recommendation is designed to enable the governments of importing countries to make timely and informed decisions about chemicals entering their territories which have been banned or severely restricted for reasons of health or environmental protection in the exporting country. The BIAC Guides cover chemicals in general and are addressed to manufacturers and traders exporting such chemicals. Their application by industry on a voluntary basis will be in addition to intergovernmental activities.

The Guides have been developed under the sole responsibility of BIAC and as such represent the opinion of BIAC alone.

It is BIAC's intention to promote and disseminate widely this brochure to all interested parties. Copies can be obtained from the BIAC Secretariat.

Paris, October 31, 1985.

Yolande Michaud
Secretary General of BIAC

P.L. de Reeder
Chairman of the BIAC
Committee on Chemicals

Introduction

The adequate dissemination of information on the possible effects of chemicals on health and the environment is a matter of international concern. The OECD Council Recommendation on Information Exchange Related to Export of Banned or Severely Restricted Chemicals * is one example of the recognition being given by Governments to this fact.

Recognizing industry's responsibility to inform direct customers about hazards associated with chemicals and about safety practices designed to minimise the risks, and also recognizing the major role that industry and trade can play in the dissemination of this information to other users and handlers world-wide, the BIAC Committee on Chemicals has prepared these Guides. They set out a voluntary scheme for compliance with good practice to be observed by exporters of chemicals, in the awareness that, for certain sectors of industry, more specific codes already exist.

By widely disseminating these Guides, particulary where adequate infrastructures for chemicals control have not yet been established, industry will be making a significant contribution to the greater protection of health and the environment. However, the preparation and distribution of these Guides by exporting manufacturers and traders does not relieve importers from their obligation to comply with local requirements for handling and use of chemicals.

Recognizing the primacy of chemicals control legislation in each importing country, these Guides are not intended to substitute for, nor to modify, such legal requirements.

The Guides are:

1 intended to promote the safe use, handling and disposal of chemicals in importing countries;
2 addressed to manufacturers and traders (including processors, formulators and brokers), exporting chemicals.

---

* Document C(84)37 (Final)

Guides

1 *Manufacturers and traders exporting chemicals should:*
take appropriate steps to evaluate the hazards of their chemicals to health and the environment and, where necessary, take into account the specific situations of intended use. In so doing, the same principles should be applied both to exported and to domestic chemicals.

2 *Manufacturers and traders exporting chemicals should:*
ensure, so far as is reasonably practicable, that relevant information on the safe use, handling and disposal of their chemicals (such as instructional product literature, safety data sheets and labels) reaches their customers in importing countries. This information should be in a format appropriate (e.g. signs, symbols and languages) for the importing country.

3 *Manufacturers and traders exporting chemicals should:*
co-operate with and support, where appropriate, training and educational activities in importing countries designed to improve customers' and users' understanding of information, particularly on the safe use, handling and disposal of chemicals.

4 *Manufacturers and traders exporting chemicals should:*
assist importing countries to take appropriate actions in situations where a particular chemical has been shown to be an imminent threat to health or to the environment.

5 *Manufacturers and traders exporting chemicals should:*
make every effort to ensure that advertising of their chemicals is consistent with the objectives set forward in these Guides.

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TESTIMONY OF
DONALD R. LESH, EXECUTIVE DIRECTOR,
THE GLOBAL TOMORROW COALITION,
ON THE SIGNIFICANCE OF THE REPORT OF
THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (WCED)
FOR U.S. FOREIGN ASSISTANCE POLICY

U.S. SENATE COMMITTEE ON FOREIGN RELATIONS
SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY,
TRADE, OCEANS, AND THE ENVIRONMENT
SENATOR TERRY SANFORD, CHAIRMAN

APRIL 13, 1988

It may well be, Mr. Chairman, that this hearing of your Subcommittee today can help solve a persistent mystery. How has it been possible for the work of the World Commission on Environment and Development (WCED) -- from the time of its formation in December 1983 under the auspices of the United Nations; through its nearly three-year-long program of meetings and public hearings in virtually every major region of the world; to the release in April 1987 of its report, Our Common Future; and to the presentation of the report to the U.N. General Assembly last October by the WCED Chairman, Prime Minister Gro Harlem Brundtland of Norway -- to remain perhaps the best-kept secret of our time in the United States?

I therefore commend you and your colleagues, Mr. Chairman, for your decision to use this hearing to focus broader public attention in the United States on the WCED report and, in particular, on its significance for the advancement of environmentally sustainable development worldwide through U.S. foreign assistance policy. I feel privileged to be able to join in this dialogue today as a representative of the Global Tomorrow Coalition (GTC), and I am very grateful for your invitation.

There are three excellent reasons why the GTC deserves to have a voice in this hearing. First, as a national alliance of more than 110 nongovernmental organizations, with combined memberships of over eight million Americans, the Coalition is probably the largest U.S. non-profit entity devoted to: (a) better public understanding of the implications of current global trends in population growth, resource consumption, environmental quality, and economic development; and (b) encouragement of stronger leadership on the part of the United States and its citizens in the continuing search for solutions to related problems.

Second, the GTC has increasingly placed the theme of sustainable development at the center of all of its program activities. This applies uniformly to the Coalition's periodic cosponsored Globescope Assemblies across the country; to its curriculum development and teacher training programs at the elementary and secondary levels; to its current revision and planned re-publication of the GTC Citizen's Guide to Global Issues as the Citizen's Guide to Sustainable Development; and most emphatically to its ongoing public education activities on the U.S. role in sustainable development under the auspices of a three-year U.S.A.I.D. Biden-Pell grant.

Our last Globescope Assembly, for example, held in mid-March in Oshkosh, Wisconsin, centered on the theme of "Understanding Sustainability: Working Together for the Economy and for the Environment." Even more recently, in fact just last weekend on April 9, we organized a day-long forum of NGOs in Los Angeles on "Cooperative Alliances for Global Sustainable Development." I am pleased to report that, in the course of the latter meeting, we learned to our surprise and encouragement that a small grassroots organization called Common Future Information Team had been formed spontaneously in San Diego earlier this year, with the goal of disseminating the findings of the WCED more widely; and that one of the Democratic mayoral candidates in San Diego is at present running on a platform based largely on the Brundtland Commission recommendations.

Third, and finally, the GTC played a special role over more than two years in the work of the Brundtland Commission at the personal request of Mr. William Ruckelshaus, the former Administrator of the Environmental Protection Agency who served as the commissioner from the United States on the WCED. To carry out his WCED functions most effectively, Mr. Ruckelshaus asked several organizations to help him maintain contact with relevant U.S. constituencies, and the Global Tomorrow Coalition was designated as his point of liaison with U.S. nongovernmental organizations.

It was in fulfillment of that responsibility, and at Mr. Ruckelshaus' direct personal suggestion, that the GTC undertook the coordination of a paper entitled "Sustainable Development and How To Achieve It" as a contribution on the part of U.S. nongovernmental organizations to the deliberations of the Brundtland

Commission. One GTC member group, the Natural Resources Defense Council (NRDC), took the lead in preparing the initial draft of this paper, with Mr. Thomas B. Stoel, Jr. acting as principal author. The draft was then circulated widely for comment. In final form, the paper reflected the ideas and suggestions of many individuals and groups, some members of the GTC and some not, and therefore was not identified as either a GTC or NRDC document but as the product of a collective enterprise by citizen groups in the United States. In May 1986, through the generosity of our Canadian NGO colleagues, a special evening session to discuss this paper with WCED Commissioners was arranged in Ottawa as part of the extensive WCED public hearings sponsored there by the Canadian Government. Under the coordination of the GTC, five individuals including myself, all representing concerned U.S. NGOs, flew up to Ottawa to participate in the presentation. I will refer to the content of this paper later in my testimony.

Against this background of comprehensive GTC involvement in the work of the WCED and our strong program focus on the theme of sustainable development, I am sure it will come as no surprise for me to state that we deplore the lack of attention paid by the U.S. Government so far to this uniquely important international initiative, and the general ignorance throughout the United States of the existence of the WCED, its activities, and its recommendations.

Let me make clear from the outset in this discussion, Mr.

Chairman, that the GTC cannot lobby for or support a specific piece of legislation without the unanimous prior consent of its Participating Member organizations, a limitation built into our bylaws at the time of our founding in 1981 to encourage the broadest possible spectrum of groups to join in our exploration of a more sustainable global future, without fear of being associated through the GTC with a proposed policy or pending bill on which they had no established position. However, sharing in an exchange of views on the policy significance of the Brundtland Commission report, at the invitation of your Subcommittee, is--in my understanding -- not lobbying, and I am therefore happy to speak on the issues in this hearing from the perspective of my seven years of service as Executive Director, and now CEO, of the Global Tomorrow Coalition.

Later in my testimony, in keeping with your request for specific recommendations on legislation pertaining to U.S.A.I.D. and Treasury activities, I will summarize some positions taken by a broad alliance of close to 150 nongovernmental organizations-- and conceivably even more by this writing -- in favor of early passage of the Foreign Assistance Act (S. 1274) as reported by the Senate Foreign Relations Committee on May 22, 1987. Although approximately 15 GTC members, including several of the largest and most energetic groups, are among the impressive array of organizations endorsing this action, it does not have the unanimous approval that would be required for me to present it as a position of the Global Tomorrow Coalition. I am confident, therefore, that the members of the Subcommittee will understand that, in that portion of my testimony, I will be fulfilling another of our board-approved GTC functions, namely, helping in a variety of ways to make the principal legislative goals of our member organizations more widely known, in order to help them achieve broader support for their policy initiatives.

What, then, is the basis for my earlier assertion that the work of the Brundtland Commission is of unique importance to the policies, practices, and institutions of the United States and, indeed, of all nations? The WCED findings and recommendations deserve our closest attention because they derive from a source worthy of our confidence and respect, and directly affect our future economic vitality and health, quality of life, even our national security, in many ways. Consider the following:

1. The WCED report comprises, in a single, quite readable statement, the first international consensus on long-term issues of environment, development, population, and resources since the time of the 1972 Stockholm Conference on the Human Environment. The Commission included senior representatives -- not primarily researchers or academicians, but men and women with extensive political experience and a sense of practical affairs -- from many "worlds," East and West, North and South, affluent and poor, developed and developing. Yet this diverse group of knowledgeable individuals eventually rendered a

unanimous verdict on the prospects for the global future. There were no dissenting opinions, no explanatory footnotes on behalf of one or another Commissioner, only an urgent and united expression of global concern that we and other nations would do well to heed in the best interests of our citizens.

2. The message transmitted by Our Common Future in regard to well-documented global trends in expanding environmental stress, continued rapid population growth, accelerating consumption of both renewable and non-renewable resources, and unsustainable patterns of economic development is remarkably--and discouragingly -- similar to earlier, and largely unheeded, international warnings. The Foreword of the WCED report draws a parallel explicitly with the Brandt Commission's Programme for Survival and Common Crisis, and with the Palme Commission's Common Security. But the lineage of global studies or statements to reach comparable conclusions is far broader and richer: it includes, to cite several examples, the First Report to The Club of Rome, The Limits to Growth, and subsequent studies carried out under Club of Rome auspices; the OECD InterFutures report; the IUCN World Conservation Strategy; and especially Entering the 21st Century: The Global 2000 Report to the President. There are conceptual and substantive differences among these efforts, to be sure. But the bottom line of warning the international community of the need for urgent, concerted, and foresighted action to avoid or mitigate impending global threats is common to all.

And so, one must add with regret, is the obvious power of social, economic, and political inertia around the world to postpone, or negate, such action.

3. For the first time, however, the Brundtland Commission report affirmed the view that actions to meet human needs and aspirations, respect for the Earth's natural systems, and economic growth and progress not only are compatible, but are inextricable parts of a single whole. The WCED emphasis on the unifying concept of sustainable development has evoked a generally positive, if cautious, response even on the part of major business organizations. The International Chamber of Commerce (ICC), for example, while expressing a number of reservations about portions of the WCED report, concluded in September 1987 that it:

> ...merits serious consideration by the business community and its environmental advisors. Most fundamentally, it is the first report of its kind which recognizes that economic growth can be the engine for ameliorating environmental problems in both industrialized and developing countries.
>
> It addresses significant issues which require the attention of industry, especially the concept of sustainable development...
>
> The ICC believes that the business community should accept the WCED's invitation to cooperate with governments and international organizations in fostering sustained economic growth consistent with environmental quality. It should stress that free market economy mechanisms are the most effective way of achieving the report's objectives, many of which require long-term solutions...

In a similar vein, an assessment by the staff of the International Environmental Bureau, the Geneva-based corporate initiative that grew out of the World Industry Conference on Environmental Management (WICEM), found that Our Common Future:

> ...is likely to set the agenda for continued debate on international and development issues for the next several years. For this reason, it is important for industry leaders to be aware of the major themes and recommendations set forth in this document.
>
> There is another reason why business leaders might wish to pay special attention to the Brundtland Report. Previous reports on the subject of environment and development... tended to emphasize the negative aspects of industrialization and development, as well as their impacts on social conditions and natural resources in various parts of the world. The Brundtland Report has taken a very different approach -- one of recognizing that industry is an indispensable motor to growth and that economic development is absolutely necessary to produce the financial resources needed to address environmental and many other social problems that confront both developing and developed countries.

If organizations representing many of the major multinational corporations of the world acknowledge the importance of the WCED recommendations and -- even allowing for some considerable contrasts in interpretation -- call for engagement by business leaders in the policy dialogue resulting from the publication of Our Common Future, what logic can dictate that the Executive Branch of the U.S. Government should do its best to ignore it?

Within the Global Tomorrow Coalition, we believe that the long-term issues posed so powerfully and effectively by the Brundtland Commission are directly applicable to every government of the world...East or West, North or South, Capitalist or Communist, Liberal or Conservative, and certainly Democratic or Republican. While the issues are intrinsically political, in the sense that their resolution lies at the heart of the way we live and govern ourselves and our economies, they appear manifestly less and less ideological with passing time. In other words, leaders in the Kremlin clearly have just as many good and valid reasons to study the WCED recommendations carefully as do leaders in the White House, and the Congress.

Why, then, have we seemed to turn a deaf ear in the United States? The contrast between our national behavior in regard to the WCED and that of our good neighbors to the north in Canada could scarcely be more graphic. While the United States made no voluntary contribution whatsoever to the international support of the work of the Brundtland Commission, Canada was generous. While our elected leaders did their best to ignore the existence of the Brundtland Commission and spurned suggestions for a WCED hearing in the United States, the Canadians actively sought and energetically sponsored a visit by the WCED to their country, which took the form of a ten-day series of public hearings, site visits, and open discussions ranging across the nation from Vancouver to Ottawa and the Atlantic Provinces. While to this day the only formal program responses in the United States to Our Common Future have come from the nongovernmental sector, in Canada carefully structured discussion programs began with government sponsorship at the provincial level two years before the WCED completed its work, leading to the establishment of a National Task Force on Environment and Economy by the Canadian Council of Resource and Environment Ministers in October 1986. In the succeeding year, before the Brundtland Commission Report was formally presented to the U.N. General Assembly, this Canadian effort had brought together representatives of government, industry, nongovernmental organizations, scientists, and academicians in a round-table dialogue on their shared objective to:

> ...promote environmentally sound economic growth and development, not to promote either economic growth or environmental protection in isolation.

The quotation is from the excellent report of this Task Force, released in September 1987, which would be a worthy addition to the materials considered by this Subcommittee. It concluded, among other things, that "Environment is where we all live; Development is what we all do." One of the results has been a nationwide commitment to relate the global concepts of the IUCN World Conservation Strategy to the special and diverse conditions of Canada in a plan:

> ...for the rational management and protection of living resources...to ensure that our renewable resource base is sustained for future utilization, and to ensure that we preserve genetic diversity and maintain necessary ecological processes and life support systems. Such plans are called conservation strategies. They are frameworks for judicious use of our renewable resources and can be used as blueprints for sustainable economic development in the renewable resource sector.

Measured against this Canadian example of vigorous private/public engagement with the issues posed by the Brundtland

Commission, our national response pales into insignificance. In my view, our elected officials, with rare exceptions, are clearly failing to recognize our national self-interest in pursuing this discussion and debate. Our Canadian counterparts are by no means perfect, and their solutions may not be entirely appropriate for our circumstances; indeed, the Canadians tend to be the first to point out the flaws and weaknesses in the approach they have chosen. But they are at least doing something about identifying community, provincial, and national choices for more sustainable patterns of development, while we seem content to muddle through with faith that the concept of "business, and politics, as usual" will carry us forward successfully into the next century and beyond. After all, as our leaders regularly remind us, we are "Number One" and we do "stand tall."

I am heartened by the fact this this Subcommittee, Mr. Chairman, is looking beyond easy slogans to hard facts and ideas related to sustainable development, especially with regard to the shape and content of our foreign assistance programs. While applauding that initiative, however, let me underline two points:

1. We must beware the fallacy of self-exclusion. The WCED report is not only about the process of development in Third World countries, and the potential for affluent countries such as ours to exert more positive, environmentally sensitive influence on that process in the poor nations through our assistance programs. On the contrary, the imperatives of sustainable

development are equally applicable to the United States, to our governmental, economic, and social structures, and to our patterns of growth and consumption. As we attempt to use our aid programs and our considerable influence with the Multilateral Development Banks to foster more environmentally responsible and ecologically sustainable development policies abroad, we must not forget to look at our own development policies and practices at home. Over the long run, the example we set domestically in this regard in the United States may exert far more powerful influence on the course of economic development in the Third World than any changes we succeed in imposing through legislation or persuasion on U.S.A.I.D. and The World Bank.

2. We have been, and still are, very poorly equipped as a society and government to deal comprehensively and accurately with the interactions of these long-term issues of environment, population, resources, and development. The Global 2000 Study carefully documented the shortcomings of the Executive Branch in this field, and concluded in 1980 that:

> ...the executive agencies of the U.S. Government are not now capable of presenting the President with internally consistent projections of world trends in population, resources, and the environment for the next two decades. (Volume II, page 454.)

Since our capacities for such analysis and projection have arguably worsened over the past eight years through ideological disinterest reflected in budget cuts and loss of experienced personnel, it would seem prudent to concentrate on the improvement of what has come to be called our structure for national foresight at the same time as we sharpen our focus on the effects of our foreign assistance programs. Otherwise, our capacity within the U.S. Government to draw valid judgments on long-term global trends may remain subject to doubt. This is, however, a topic under examination by other committees in both the Senate and the House of Representatives, and is currently being addressed through S. 1171 under the sponsorship of Senator Mark Hatfield and others.

Let me return to the question of how the goal of global sustainable development might be expressed more effectively in U.S. foreign assistance policies. The paper "Sustainable Development and How To Achieve It," to which I referred earlier, suggested a broad array of criteria the observance of which would have that effect. Among these were:

o satisfaction of basic human needs for food, clean water, fuel, shelter, health care, education, and employment;

o freedom from unwanted dependence, whether financial, racial, religious, or cultural, and assurance of access to political participation;

o control and stabilization of population growth through responsible family planning programs, as well as through wider opportunities for women in education, employment, and self-expression; and o institutional, policy, and value changes in the direction of protecting natural and life support systems, especially global commons such as the oceans, atmosphere, forests, diversity of biological species, productive croplands and grasslands.

The fundamental concept of sustainable development was defined in that paper as "...a process of change to meet the needs of people, as defined by them, without lessening the potential for meeting their future needs, the needs of other societies, or those of future generations." Our Common Future provided a slightly different definition as: "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The WCED report went on to note that sustainable development comprises both the concept of priority in meeting the essential needs of the world's poor, and the idea of limitations "imposed by the state of technology and social organization" on environmental capacity to meet present and future needs.

While one might easily continue to list abstract ideals for foreign assistance policy, it will probably be of greater practical value to the Subcommittee to consider the proximate goals that would be achieved by the passage of S. 1724, the revised Foreign Assistance Act. As noted earlier, S. 1724 enjoys the support of some 150 nongovernmental organizations, including GTC member groups such as, for example, CARE, Environmental

Policy Institute, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, Planned Parenthood Federation of America, Population Crisis Committee, Sierra Club, Zero Population Growth, and Rodale International.

These groups maintain that S. 1274 offers a particularly important and rare opportunity to incorporate into law some basic concepts of sustainable development such as increased reliance on small-scale, self-help projects using appropriate technology and agricultural methods suited to the local environment; stronger focus on long-term, low-risk, affordable, and resource-conserving approaches; and greater emphasis on prior consultation with indigenous peoples, both women and men, and their involvement in planning and implementation of development projects through local nongovernmental organizations and cooperatives.

In particular, the sponsoring organizations stress the importance of the inclusion of the Africa Famine Recovery and Development Amendments, introduced by Senator Paul Simon, which would have the effect of urging U.S.A.I.D. to allocate at least 30 per cent of its $500,000,000 Africa Development Fund budget to: (a) environmental and natural resource protection; (b) support for voluntary family planning; and (c) primary health care services. The remainder of the Fund budget would be available for A.I.D. discretionary allocation.

This legislation has already been passed in the House of

Representatives in slightly different form; early passage in the Senate would enable a conference committee to work out the differences in a new Foreign Assistance Bill that its sponsors believe would constitute a major and constructive step toward institutionalizing the concepts of the WCED report in U.S. foreign aid policies. While I cannot speak in this regard for the Global Tomorrow Coalition, for the reasons I have explained, I certainly wish to take this opportunity to record my strong personal endorsement of the pending legislation.

In response to the Subcommittee's final question, I believe, as I suggested above, that it would clearly be of major national benefit -- and of great potential international significance-- for the United States to consider a national policy for environmentally sustainable development. But I also feel strongly that such consideration would have to be based on a carefully planned national program of public dialogue on the issues, analogous to that already undertaken in Canada. It would be counter-productive to try to leap to the level of national legislation without something akin to a preliminary round-table approach at the local, state, and regional levels -- involving representatives of government, business, NGOs, science and technology, education, religious groups, and the communication media -- with government sanction and funding assistance. The Global Tomorrow Coalition would, of course, warmly welcome such an initiative and would look forward to an active role in its planning and implementation through our own staff and the staffs and members of interested GTC organizations.

Thank you.

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STATEMENT OF THOMAS B. STOEL, JR.

DIRECTOR, NRDC INTERNATIONAL PROGRAM

BEFORE THE SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY, TRADE, OCEANS & ENVIRONMENT OF THE SENATE COMMITTEE ON FOREIGN RELATIONS

April 13, 1988

Mr. Chairman, I appreciate very much the opportunity to submit this statement for the record of this important hearing. I am Thomas B. Stoel, Jr., Director of the International Program at the Natural Resources Defense Council (NRDC). NRDC is one of the Nation's leading environmental organizations, with more than 75,000 members in every state and many foreign countries.

The subject of this hearing -- the report of the World Commission on Environment and Development and its implications for U.S. foreign assistance policy -- is of great interest to NRDC and to me personally. The Global Tomorrow Coalition, of which I was President through most of the Commission's existence, served as the Commission's liaison to nongovernmental organizations in this country. I and others at NRDC have kept in close touch with the Commission's work. Norwegian Prime Minister Gro Harlem Brundtland, the Commission's Chairman, delivered NRDC's Marshall Lecture in New York last October at the time she presented the Commission's report to the UN General Assembly. We believe the Commission's report has great significance for the future of our nation and the world and,in particular, signals the need for urgent, far-reaching actions by the U.S. Congress.

I. Summary

The World Commission on Environment and Development has given us an excellent description, from a worldwide perspective, of the obstacles to sustainable development and the work which is urgently needed to overcome those obstacles. In particular, the Commission has pointed out the urgent need to structure human activities so as to prevent further deterioration of the global commons -- the atmosphere, oceans, and Antarctica -- and the necessity of international cooperation to help developing nations achieve sustainable growth without destroying their environments and natural resource base.

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The Commission has set out the tasks before us, but it has not provided us with a detailed blueprint. It is up to us to identify the actions the United States must take to solve these problems, and make sure those actions are taken.

The United States -- the world's wealthiest and most influential nation -- must play a leadership role if these problems are to be solved. This is very much in our own self-interest, for failure to solve these problems will have major adverse effects on our economic, environmental, and security interests. However, the Reagan Administration has largely abdicated the leadership position on these issues which we occupied in the 1970s, and we need to move swiftly and vigorously to make up for lost time.

Specifically, this Committee should:

- Develop and report out legislation which changes the policies, procedures, and organization of the U.S. Government so as to ensure that these international environment and resource issues become a major theme of U.S. foreign and national security policy.
- Pass the pending reauthorization of the Foreign Assistance Act, and then amend the Act further to ensure that this country assists the world's poorest countries to address these problems by focussing available resources on sustainable use of natural resources and stabilizing human populations. Reverse misguided policies which deny U.S. assistance to some of the most effective family planning institutions.
- Continue to pressure the multilateral development banks to improve their environmental performance.
- Ensure effective actions to address global problems like loss of biological diversity and global warming of the atmosphere, by earmarking funds to ensure that the U.S. Agency for International Development mounts a strong effort to conserve the earth's precious stock of animal and plant species; directing the Executive Branch to take the lead in negotiating an international convention to protect the habitats of endangered species; and making the global warming issue a high priority for our bilateral assistance program and for all of the multilateral aid institutions and other international organizations in which we participate.
- Provide strong support for international institutions which can facilitate the international cooperation essential to solving the problems described in the Commission's report. In particular, ensure that the United States contributes at least $12 million in FY 1989 to the UN Environment Program.

- o Do everything possible to focus our international economic policies on stimulating growth and rapidly expanding markets in the developing nations where three-fourths of the world's people live, and making sure that our products are competitive there.

II. The World Commission and Its Work

The World Commission on Environment and Development was created as a result of a UN General Assembly resolution adopted in the fall of 1983. The Commission was given the broad task of examining critical issues of environment and development and proposing actions to deal with them. As finally constituted, the Commission consisted of 22 members from 21 different countries. The Chairman was Mrs. Gro Harlem Brundtland, the Prime Minister of Norway. The U.S. Commissioner was former EPA Administrator William D. Ruckelshaus.

The Commission had its own staff and operated as an independent body. It held public hearings on each of the five major continents; received written submission from hundreds of sources; appointed panels to advise it in key areas; and sponsored a number of studies.

The Commission's report, "Our Common Future," was issued on April 27, 1987. The most remarkable thing about the report is that these 22 individuals from all parts of the world reached unanimous agreement on such a broad-ranging text, with no dissenting views. This represents a major breakthrough in the field of environment and development. The last major consensus document in this field was the 1972 Declaration of the United Nations Stockholm Conference on the Human Environment. While the Stockholm Declaration also was adopted unanimously, it papered over very large differences between industrialized and developing countries on such crucial subjects as the relationship between poverty and environmental quality and the need to reduce the rate of population growth. Now, the World Commission's three years of deliberations and discussions have produced a common point of view on these and other issues among Commissioners with extremely different backgrounds.

In form, the Commission's report consists of an overview followed by twelve chapters dealing with such diverse subjects as the nature of sustainable development, the role of the international economy (including the debt crisis), population and human resources, food security, species and ecosystems, energy, industry, the urban challenge, managing the global commons, peace and the arms race, and proposals for legal and institutional change. The report does an excellent job of describing the environmental problems which confront the world, and discussing their significance and interrelationships. It breaks new ground in outlining in some detail a concept of "sustainable development" wide enough to encompass all of these issues and the actions needed to deal with them.

The Commission reaches two broad conclusions. First, human activities are now beginning to affect the environment on a regional and even a global scale, and the adverse impacts will soon be irreversible. We have no more time to wait before addressing problems like acid rain, depletion of the stratospheric ozone layer, and worldwide warming of the atmosphere due to emissions of carbon dioxide and other gases. Nations must cooperate on an urgent basis to protect the global commons -- the oceans, atmosphere, and Antarctica -- and other resources of global importance. Otherwise, we will soon exceed the "outer limits" imposed by nature and leave a greatly diminished heritage to future generations.

Second, the developing nations, where the great majority of the world's people live, face enormous environmental problems which can only be solved by economic growth which is environmentally sustainable. These nations are the source of almost all of the world's projected population growth -- the world is adding almost a additional people a decade to a population now estimated to have reached 5 billion. The great challenge is to meet the needs of these people without destroying the biological systems -- forests, grazing lands, croplands, and fisheries -- on which people depend for food, fuel, shelter, and other necessities.

The Commission points out that the world's tropical forests are rapidly being destroyed. Since they are the home of perhaps half of all the world's plants and animals, we face the prospect that up to 20% of all the world's living species will be rendered extinct in the next few decades. Desertification and other forms of soil erosion threaten the productivity of vast areas of grazing lands and croplands, causing widespread human misery and even deadly famines, as we saw recently in Africa.

The Commission notes that developing countries are hampered in addressing these problems not only by their internal weaknesses but also by the debt crisis and the difficulty in finding markets for their products. Many of them will need sympathetic assistance from the industrialized nations if they are to achieve sustainable development.

Much of the value of the report lies in its detail. In chapter after chapter, the Commission points out the urgency of the problems under discussion, and calls for immediate actions to address them. The report does a thorough job of canvassing the possible solutions, and some of its action recommendations are quite specific.

However, it is important to recognize that the Commission's report does not set forth a detailed blueprint for action. In some cases, this is because the actions required are national or local, and may vary depending on the setting. But even when the actions needed are at the global level, the Commission almost always stops short of detailed recommendations and sets forth options or recommends only that particular solutions be "considered."

It probably was unrealistic to expect any more in view of the Commission's diversity, the wide range of issues it considered, and its limited opportunities for discussion. The report itself concludes by recommending an "active follow-up," including a UN Program of Action on Sustainable Development, follow-up conferences at the regional level, and eventually a global conference to review progress.

In short, the Commission has given us an excellent description, from a worldwide perspective, of the obstacles to sustainable development and the work which is urgently needed to overcome those obstacles. The Commission is to be commended wholeheartedly for doing this much, and doing it so competently. It is now up to us to carry out the work the Commission has set before us.

III. Significance for the United States

As just noted, the report of the World Commission describes a daunting array of international environmental problems. To solve them, the world must, during the next few decades, lower drastically the rate of population increase; improve agricultural production without further destroying the earth's biological systems; safeguard the earth's treasure chest of wildlife species; find a suitable replacement for the petroleum which fuels much of the world's economy; and control ozone depletion and contamination and warming of the atmosphere. It is no exaggeration to say that we live at a turning point in history, for success or failure in meeting these challenges will decide to a considerable extent the long-run future of the United States and the rest of humanity.

It may appear that some of these problems have little to do with the United States. However, it would be a mistake to regard these as someone else's problems. Our country's future is tied to that of the rest of humanity -- including the developing nations -- in a variety of ways.

A. The Economic Connection

One major connection is economic. At the end of World War II, the U.S. economy accounted for about 50% of the global gross economic product. Now the figure is about 25%. This relative decline is expected to continue, due mainly to increased production and human populations in developing countries.

Most commodities we use are traded on world markets, and the prices we pay or receive are world prices. If a burgeoning world population demands more tin or chromium, we as well as others will pay higher prices. If marine fisheries outside this country are overfished, we will pay more.

We import from and export to other nations on a larger scale than ever before. As illustrated by the "world car," products are manufactured and marketed by multinational corporations through integrated processes which do not respect national boundaries. Some products we need cannot be produced in our own country, and depend on biological systems in developing nations. One-third of all prescription drugs sold in this country, including those which have increased dramatically the survival rate for childhood leukemia, have their origin in animal and plant species found only in tropical forests. Wild strains of corn, wheat, and other food crops, found only in the tropics, are likewise vital to improving the productivity of our agriculture and protecting it against insects and disease.

Developing countries already account for two-fifths of U.S. exports and imports We are deeply troubled when Brazil or Mexico can't pay its debts. These nations with fast-growing populations inevitably will produce an increasing share of the world's economic wealth. Future U.S. economic growth and competitiveness will depend on finding markets there. Right now the debt crisis and economic stagnation in these nations are costing the United States billions of dollars of export earnings and hundreds of thousands if not millions of jobs.

B. The Environmental Connection

The environmental connection to the rest of the world is at least as important to our future welfare. The earth's life-support system, the biosphere, is interconnected by complex biological and geochemical processes. We have no choice but to protect the biosphere as a whole, for serious disruptions anywhere will affect us all.

There are major threats to the biosphere in developing nations, where three-fourths of humanity lives, where basic human needs are not satisfied, and where pressures on the natural resource base -- water, soils, forests, wildlife, fisheries -- are immense and growing. The collapse of these systems on which billions of people depend would have enormous implications for our future welfare and security.

Equally serious are threats which are inherently international: halting ozone depletion, preventing carbon dioxide buildup, controlling trade in hazardous materials, harmonizing regulation of toxic substances, protecting the earth's biological diversity. It would be monstrous for us to leave to our children a planet where the atmosphere warms to levels not experienced in a million years; where a depleted ozone layer is exposes all life forms to harmful ultraviolet radiation; where vegetation and soils are rendered dead by acidification; where deadly toxic chemicals pervade air, water, food, and even mothers' milk; and where a quarter of all animal and plant species no longer exist. Yet these are the directions in which we are headed. International cooperation is essential if we are to avoid these perils, but we have hardly begun to work together to attack them.

C. The Security Connection

A third connection to the rest of the world is in the area of national security. For a hundred years after George Washington warned against "entangling foreign alliances," the United States followed his advice. Growing international ties caused us to join the Allied cause in World War I and again in World War II. After the Second World War, we helped Western Europe through the Marshall Plan.

For the last 40 years, the United States and its Western allies have been engaged in a worldwide struggle with the Soviet Union. One consequence has been a growing but often unrecognized U.S. security relationship with developing countries. We have fought two major wars in developing countries: Korea and Viet Nam. We perceive a U.S. stake in the security of nations as disparate as El Salvador, the Philippines, Saudi Arabia, and Kenya. In its 1984 report, the Kissinger Commission found the U.S. interest in Central America to be so great as to justify an $8 billion foreign assistance program directed at this small region.

Unfortunately, the Kissinger Commission and other analysts of our security interests seldom acknowledge the extent to which political and economic stability in these nations are being undermined by the problems described in the report of the World Commission: population growth, soil erosion, deforestation, and other environmental and resource problems. Unless these problems are solved, developing nations will be sources of the kind of unrest which is detrimental to U.S. interests.

IV. There Are Solutions

If the existence of serious and growing problems is the bad news, there is also good news in the Commission's report. It is that, for the most part, we know how to solve these problems. There are some issues which require further study, but it can generally be said that if the best techniques being applied anywhere could be applied everywhere in the world, there would be no problem.

With respect to many threats -- among them overly rapid population growth, deforestation, extinction of wildlife species, and desertification -- there exist well-thought-out, agreed-upon international action plans for achieving solutions. In most of the areas where no comprehensive plan exists, there is general agreement as to the directions in which we should move. The Commission's report provides an accurate, up-to-date guide to the situation in each area and the actions which need to be taken next.

I don't mean to imply that the problems described in the Commission's report are well on the way to being solved. We all know they are not, and the report makes this clear. But the main reason why these problems are growing more serious is not a lack of knowledge about the actions we should take. It is that the world community is unwilling to commit the necessary resources and make the necessary policy changes.

V. The Role of the United States

Much of the responsibility for solving these problems lies with our own nation. The United States is the richest nation on earth, commanding nearly one-fourth of total global wealth. Our share of scientific and technical know-how is probably at least as great. We are looked to for leadership by both industrialized and developing nations. If we turn our back on these problems and refuse to play a leadership role, they are unlikely to be solved.

This question of the leadership role which must be played by individual nations is the only matter on which I would venture some criticism of the Commission's report. The Commission was a creature of the UN System, and may have felt that its final action recommendations should be directed to the UN. However, we do not have a world government; we have national governments. It is nations which control the world's resources. It is nations which set the agenda of the United Nations. If nations such as our own do not examine carefully the Commission's report, take its recommendations to heart, and set up mechanisms for turning those recommendations into specific action programs at both the national and international levels, it is absolutely certain that nothing of significance is going to happen.

Up to 1980, U.S. leadership was the single most important element in attacking these problems. The Reagan Administration has played a constructive role with respect to a few of them, notably the current negotiations to prevent stratospheric ozone depletion and efforts to improve the environmental performance of the multilateral banks. But for the most part our role over the last six years has been inconsistent and negative. At best, we have taken up these issues one by one, with little or no effort to see them as part of a whole picture. In response to ideological fixations or short-term domestic interests, we have obstructed efforts to address these problems and strengthen the institutions needed to deal with them.

To cite a few examples, the United States has:

- insisted on postponing indefinitely actions to address the urgent problems of acid rain on our own continent and warming of the atmosphere on a worldwide basis;

- reduced in real terms our bilateral economic aid to help developing countries solve their urgent environment and resource problems;
- hampered worldwide efforts to address the problem of overly rapid population growth by refusing on ideological grounds to support two of the world's most effective institutions: the International Planned Parenthood Federation and the UN Fund for Population Activities;
- damaged the only worldwide agency assigned to deal with these issues -- the UN Environment Program -- by reducing our contribution substantially;
- refused even to consider debt relief for official debts owed by the poorest African nations, even though Canada and many European nations have given such relief.

Instead of these negative actions, what is needed from our country -- the most influential on earth -- is strong, consistent. positive leadership on these vital issues. On the world scene, we must serve as a constant source of ideas, technical resources, money, and influence. At home, we must set an example by dealing effectively with our own domestic problems.

This is the role we often played in the 1970s, and then abandoned in the 1980s. We must exert leadership once again, and must do so with a sense of the urgent need to make up for the time we have lost.

VI. U.S. Actions Which Are Needed

A wide range of U.S. actions are needed if the world is to solve the problems described in the World Commission's report. The following recommendations are directed mainly to the Congress and specifically to this important Committee.

A. Put These Issues on the Foreign Policy Agenda

Despite their tremendous importance for our national future, these problems are not really on our foreign policy agenda, much less a high priority. If we are to solve them, they must receive long-term, sustained attention. Now our meager efforts are treated as matters of low priority, subject to delays and cutbacks when they interfere with "important" considerations like the budget deficit or national defense, or when ideologues find a deviation from sacred principles.

This makes no sense. Why do we define our "national security" interests to include actions to forestall an alleged communist menace in Nicaragua, a nation of three million hundreds of miles from our borders, but not actions to forestall impending climatic changes which could rob us of our grain belt? Why do we spend tens of billions of dollars on esoteric weapons systems and refuse to spend $10 million on the UN Environment Program which coordinates worldwide efforts to protect our only life support system? Why do we devote enormous resources to tracking political unrest in remote, poverty-stricken nations and to defining political and military responses, but have no systematic means by which our Government can foresee and prevent damage to the global resource base on which our prosperity depends?

This situation must change. In addition to moving in the specific directions outlined below, this Committee should develop legislation establishing a mechanism in the Executive Office of the President to ensure systematic identification, review, and preventative action concerning the issues discussed in the World Commission's report. A procedure similar to that of the National Security Council should be instituted to bring before the President matters ripe for presidential action.

B. Foreign Assistance

The Commission's report and common sense tell us that the world's poorest countries need help in addressing massive problems of desertification, deforestation, overly rapid population growth, and the like. It is baffling how we can spend gigantic sums on carrier groups and special military forces to project military power into these nations after trouble comes, while reducing year after year the tiny amounts of aid we provide to prevent that trouble from happening.

We must increase substantially the development assistance budget of the U.S. Agency for International Development. And we must make sure that the resources which are available are focussed on sustainable use of natural resources and stabilizing human populations.

Excellent provisions directing AID to foster the right kind development in Africa, and to become a worldwide leader in the areas of agriculture, water, and energy, are contained in the Foreign Assistance Act reauthorization marked up by this Committee a year ago: S.1274. There are similar provisions in the bill which the House passed by an overwhelming margin last December. The pending reauthorization should be passed speedily by the full Senate, reconciled with the House bill, and signed into law.

Next year the Congress should build on this foundation to redirect AID's efforts even more fundamentally. Section 102 of the Foreign Assistance Act, the section which sets basic policy, should be amended to make it clear that the fundamental goal of AID's agriculture activities is to ensure that food needs are met in ways that protect and restore the natural resource base, rather than degrading it.

The amendments now pending concerning assistance to protect the natural resource base in Africa should be extended, with suitable modifications, to the other regions of the world. The thrust of those amendments is that AID shall emphasize in all its projects full participation by the people who will be affected, and that design and administration of projects by PVOs, indigenous nongovernmental organizations, and other grassroots entities commonly is the best way of achieving participation and ensuring that development is sustainable. These principles are fundamental and should be applied in other parts of the world.

The Congress also should take steps to ensure that our family planning assistance is used to maximum effect. The Reagan Administration policies which bar assistance to effective agencies such as the International Planned Parenthood Federation and UN Fund for Population Activities should be reversed.

The Congress has taken the lead in recent years in badly needed efforts to improve the environmental performance of the multilateral banks. The Reagan Administration has supported these efforts. They must continue until the banks become positive forces for sustainable development. Specifically, we should ensure that these institutions adopt new project evaluation procedures, including mandatory environmental impact assessments; develop new lending criteria which favor smaller-scale, sustainable projects carried out with local participation; provide strong support for family planning programs; and institute programs to help solve global problems like warming of the atmosphere and loss of biological diversity.

C. Global Problems

We must direct our foreign assistance program and other efforts to the solution of urgent global environmental problems. Two of these are the loss of biological diversity and global warming of the atmosphere.

The United States must should be a leader in efforts to conserve the earth's precious, dwindling stock of animal and plant species. This Committee should insist on adoption of its $10 million earmark for such efforts under Section 119 of the Foreign Assistance Act amendments, as provided in Foreign Assistance Act reauthorization bill you marked up last year. The Senate should accede to the House amendment requiring the United States to take the lead in negotiating a badly needed international convention to protect the habitats of endangered species.

The global warming of the earth's atmosphere which probably has already begun threatens humanity with enormous economic and political instabilities, and could mark the end of hope for truly sustainable development. The trends now underway must be halted and reversed as a matter of the highest priority. In addition to setting a strong example here at home, we must make promotion of energy conservation and renewable energy sources a major part of our bilateral assistance program and a major priority for all of the multilateral aid institutions and other international organizations in which we participate.

D. International Institutions

The World Commission's report makes it indisputably clear that many of the serious challenges we face can be met only through international cooperation. This in turn requires strong international institutions.

One institution of special importance is the UN Environment Program (UNEP). Established in 1973, UNEP plays an essential role as catalyst, coordinator, and international forum on a wide variety of environmental problems. It is a tool which nations -- including our own -- can use to address problems more effectively and cheaply.

UNEP has done a good job. Without UNEP, the world's nations would not have concluded last fall an agreement to control the chemical compounds which are depleting the ozone layer. Without UNEP, we would have no place to reach international consensus on the extent and impacts of global warming, and no forum in which to find a solution. Without UNEP, nations would not have agreed on measures to clean up nine different regional seas, including the Caribbean.

UNEP must continue its work on these vital issues. It should also take other badly needed actions. But UNEP is strapped for funds. Between 1974 and 1984, the United States contributed $10 million a year to UNEP. But we have allowed our contribution to decline to $7.8 million for FY 88 -- a decline of more than 60% in real terms from the level of the mid-1970s. This short-sighted U.S. action has crippled UNEP's program, caused severe management problems, and sent discouraging signals to other donors.

This kind of false "economy" cannot continue. The United States should contribute at least $12 million to UNEP in FY 1989. There would be no swifter or surer way for the Congress to send a message around the world that the United States cares about the issues discussed in the World Commission's report and will take the lead in addressing them.

E. Economic Policies

International economics has finally come to public attention, but our emphasis is misplaced. Instead of bashing the Japanese, we should realize that the world is economy is not a zero-sum game. The whole world will benefit from growth and rapidly expanding markets in the developing nations where three-fourths of the world's people live. We should concentrate on stimulating growth in these nations and in making sure that our products are competitive there.

In addition to the economic benefits from trade with developing nations, the Commission's report makes it plain that sustainable growth in these nations is essential to solving international environmental problems. That development is unlikely if our country closes its markets to these countries which are struggling to lift themselves out of poverty. We must reject protectionism as a solution to our economic difficulties, or we will be the biggest losers. And we must find equitable ways of relieving these nations of the crippling burden of debt. In the case of the poorest nations, we should begin by forgiving the debts they owe to our Government.

VII. Conclusion

I appreciate the opportunity to present these views. All of us at NRDC look forward to working with this Committee to ensure that our nation takes effective actions to address the vitally important issues raised by the World Commission on Environment and Development.

TOWARD SUSTAINABLE GROWTH
A New Approach to World Environmental Protection

Remarks by William D. Ruckelshaus

Fourth World Wilderness Congress
September 13, 1987

If I had to sum up the recently released report of the World Commission on Environment and Development in a single phrase, it would be this: That the survival of this planet as a decent home for all who share it depends on us making profound changes in the way we do business. I have chosen the word - business - deliberately because few things affect the environment more directly than the way we extract material from nature, add value to it by industrial processes, and bring it to market. In America we refer to these processes as "doing business".

Since what I have to say today derives largely from the World Commission report, and from my personal experiences as a member of that Commission, let me begin by setting out why I believe its findings demand the closest attention from the world's economic and political leaders, whatever their nations' stage of development or their economic or political system.

First, the World Commission has made a clear finding that for most of the developing world, mindless continuation of current practices will lead to a descending spiral of environmental degradation, increased poverty, desperate remedies inflicting further destruction of irreplaceable environmental assets, political disorder and even social chaos. The statistics on what conventional "development" has wrought in terms of desertification, soil erosion, impoverishment of rural people, and the loss of tropical forests are by now depressingly familiar.

Second, the continued prosperity of the developed world is dependent on the accelerated prosperity of the developing nations in an environmentally responsible manner. The developed world is increasingly dependent on the developing countries for markets, and this dependency will increase. Even now, the developing nations represent a larger market for U.S. goods and services than all the developed nations combined, with the exception of Canada. Such markets will vanish if the developing economies do not resume their expansion and most cannot so resume if the present environmental warnings are ignored.

Think of this....We in America have always viewed environmental degradation as an unwanted side effect of industrialization. Today, in the developing world, just the opposite is true. Environmental degration equals absence of development. Third, it follows from this that economic development and environmental protection are complimentary rather than opposing goals, two sides of the same coin. This, I believe, is the central, the jarring finding of the World Commission's report: Nations that remain poor will not protect their environment; nations that do not protect their environment will either remain poor or gain poverty.

Finally, the World Commission proposes sustainable development as a new model for economic growth. Sustainable development means increasing prosperity without the destruction of the environment from which all prosperity ultimately derives. Twenty years ago, when the roots of the present environmental movement were ~~being~~ formed, such an idea would not have been welcomed or understood. Environmental protection was seen by most business and developmental interests as an overblown stumbling block. Most environmental interests saw development as the cause of environmental degradation. Many preached that the world economy had reached its limit, and that redistributive policies leading to a static, universal human leavening were the only moral choice.

The Commission saw both these views now as shortsighted. Our view was that environmental protection, far from hindering economic progress, is its irreplaceable partner and that it is growth, not poverty, that will save the environment.

It is for the economic powers of the world to lead the way in the creation of this growth. Success in fighting environmental degradation depends on reinvigoration of the world economy, a task that lies largely within the power of the developed nations, their firms, their governments, their financial and human resources and the multilateral lending institutions they fund and control.

The developed nations have a special responsibility for another reason. Perhaps the greatest luxury of a certain level of prosperity is the freedom to plan beyond the immediate future. We can see, if we will, that unless the world economy moves in the direction of sustainable development, all nations will eventually be paupers, living in a tumbledown shack of a planet.

In recent times, the poorer nations have not had that luxury. At a certain level of desperation, tomorrow is swallowed up by the mouth of today. If you are worrying constantly about what your child will eat, it is impossible to be much concerned about what your grandchild will breathe. So we see nations beginning to act like starving people, eating their seed corn, boiling it on the fires of their last tree. The developed nations have too often contributed to such situations. They have no such excuse. Ravaging the environment in exchange for marginal increases in the bottom line was never an ethical choice; we now see it is stupid as well, when considered in anything but the shortest possible view.

Let me make two final points about the World Commission findings. The first is that it is not a prediction of doom. It is the most hopeful major environmental document to be published in the past twenty years. The trends the Commission notes are a warning, but as Rene Dubos has said, not our inevitable destiny. There is not much time to change, but there is time.

The other point concerns the practicality of instituting economic changes on the scale required to make sustainable development a reality. We should understand that these changes, while possible through execution, are by no means painless. Economic policy and strategies for promoting growth in both the developed and the developing nations are products of power balances among various interests. Some of the interests adversely affected will surely have their oxen gored by the changes recommended by the World Commission, and will resist them.

We dare not be put off by such resistance. The world requires an economic order that will realistically promise sustainable development and hence a livable future. Indeed, I detect hopeful signs that significant changes are already underway. I would like to touch on some of these now, in the context of the recommendations of the World Commission report.

First, there have been significant changes in the attitudes of many corporate leaders in the developed world toward environmental concerns. In the United States, over the past fifteen years, they have generally accepted that environmental protection is a necessary cost of doing business. Transnational corporations are a major influence on the environment throughout the developing world, and a major source of both pollution and the diffusion of environmentally sound technologies. The proportion of money flowing into developing countries from private sources is much greater than the total of official development aid. Recognizing the importance of this investment several major corporations from a number of developed countries have formed the fledgling International Environmental Bureau to help developing countries plan growth in an environmentally sound fashion. The device of swapping debt for the commitment to protect vital natural areas, pioneered by Citicorp and Bolivia, is a more dramatic example of this new concern.

These are important first steps but much more needs to be done. Increasing cooperation between government and industry is essential if we are going to generate real strategies for sustainable development. This can be accomplished directly by the establishment of joint advisory councils in individual nations, or indirectly through the use of regional or nongovernmental organizations.

Out of such cooperation should come environmental goals, regulations, incentives and codes of private sector behavior that are workable, international, and consistent. Nor should industry remain a merely passive complier. There is much it can do affirmatively, even within the constraints of competition. Hopeful examples of this are the formation in the United States of Clean Sites Incorporated, an industry-funded organization devoted to cleaning hazardous waste sites, and the Health Effects Institute, which receives support from both government and the motor vehicle industry, and which functions as an authoritative source of information on the health impact of auto emissions.

Extending this concept to sustainable development, the World Commission recommends: That all industrial enterprises work to establish company and industry-wide policies governing resource and environmental management, including management and worker training to incorporate cleaner technologies and environmental planning into work patterns; that industries using hazardous materials insure that information on the risks involved be conveyed, not only to government agencies in the host nations, but also to the people subject to such risks; that plants be operated according to the highest standards of safety; and that transnational firms institute environmental and safety audits of their operations in host countries, and measure the findings not against the prevailing local standards, but against those in effect in developed nations. These and similar measures will help to move transnational firms into a position of environmental leadership commensurate with their enormous technical skills and economic strength.

Of course, international agencies also have a major role in the effort toward sustainable development. They have come to realize that in the past their development aid has often encouraged quick yields of exportable commodities at a terrible cost in environmental degradation and has resulted in the actual impoverishment of large numbers of people - - in short unsustainable development. This is changing. As Barber Conable, President of the World Bank, has said, "Sustained development depends on managing resources, not exploiting them. Economic growth based on any other premise is a costly illusion." Recently we have seen this reformed policy in action in relation to international funding of roads and railroads in the Brazilian Amazon. The Inter-American Bank has threatened cancellation of this funding because the roads are leading to wholesale destruction of rain forests for cattle ranching and the production of pig iron, using charcoal derived from the forest. This situation is worth mentioning because it is highly symbolic. There is something seriously flawed with an international development assistance program that encourages the destruction of irreplaceable tropical forest to produce a commodity -- pig iron -- in which the world already possesses a vast and growing overcapacity.

Beyond this, the World Commission report recommends that a larger proportion of total development assistance go to investments needed to enhance the environment, such as reforestation, fuel wood production, soil conservation, rehabilitation of irrigation projects, agroforestry, and small scale agriculture. Sustainability considerations must be diffused throughout the lending community, starting with the World Bank and the International Monetary Fund, particularly in regard to commodity assistance and other policy-oriented lending. In the past, such lending has served too often to reduce, rather than enhance, the possibilities for sustainable development.

The mandates of international trade organizations, principally the General Agreement on Tariffs and Trade and the United Nations Conference on Trade and Development, should be modified to reflect concern for the impacts of trading patterns on the environment.

Other international institutions should move to recast their research and planning activities in order to strengthen the information base that will make development sustainable. A recent example of this is the Tropical Forestry Action Plan produced by a cooperative effort of the Food and Agriculture Organization, the World Bank, the World Resources Institute, and the U.N. Development Programme. The Plan offers the opportunity for ending the current state of alarm over the destruction of these forests. Its implementation would lead to restored productivity, sustainable use of forest resources, improved food security through better land use, increased supplies of the fuel wood upon which fully half the world's population depends, increased income from locally manufactured products, and conservation of endangered species and natural ecosystems. The plan's cost -- some five billion dollars over five years -- are large in relation to what has been spent on such projects in the past, but tiny when compared to what has been spent in recent years on environmentally degrading projects in tropical forest regions.

But perhaps the most important role in creating the conditions for sustainable development will be played by governments, both in the developed and the developing world. Here is where I fear the most difficult problems will lie. History shows how unusual it is for those in charge of governments to take actions that will have effect only over the long term, when they themselves are out of office; how extremely unusual when the immediate beneficiaries of such actions are people in other lands; how virtually unheard of, when such actions have short-term negative effects on domestic political interests. This will always be true so long as governments are run by human beings.

There is reason to hope that even governments can learn from experience. I well recall a luncheon I hosted in 1972 as a U.S. delegate to the famous Stockholm conference on the environment. At that meeting invited delegates of twenty-nine sub-Saharan nations stood and roundly denounced environmentalism as a plot to check development in what we then called the Third World. The dreadful results of fifteen years of development projects that have often ignored environmental realities have in many nations had a pronounced educational effect. Recently, Julius Nyerere, the founding president of Tanzania and still one of the most influential of black African leaders stated, "Environmental concerns and development have to be linked if the latter is to be real and permanent." That would have been heresy at the Stockholm luncheon.

Examples of what happens when there is no such linkage are all too common. Perhaps the most striking is what happened in Costa Rica. I do not mean to pick on Costa Rica. I could have used any number of examples, including many right here at home. I choose it because this nation had and retains so many advantages that so many other developing nations still lack: A stable, democratic form of government, enlightened social legislation, a modern infrastructure, and a bountiful land and climate. During the 1970's Costa Rica, in common with other Latin American countries, borrowed heavily in international markets. For a variety of reasons these loans did not suffice to establish a viable industrial sector, and so pressure was increased on export agriculture as the only way to earn sufficient foreign exchange to service the loans. Now the nation entered into what the World Resources Institute has called "dual debt," the most egregious example of which is in cattle ranching. Large producers of export commodities were subsidized by cheap credit and guaranteed prices. This encouraged them to borrow again -- this time against the land itself, clearing forests and bringing marginal land into production. This additional short-term production increase led to yet more borrowing. But the poorer soils supported fewer cattle as the years passed, and the cycle went on until now, although beef production represents only six to eight per cent of Gross Domestic Product, cattle ranching soaks up a third of all agricultural credit, cattle occupy half the agricultural land, soil erosion has greatly increased, water resources have been wasted, the forestry industry has been decimated, and large numbers of people have been driven from the land into the cities, into poverty and unemployment. Costa Rica now has the highest per capita debt in Latin America and is losing forests at the fastest rate in the hemisphere. As I said, my point is not to single out Costa Rica.

If there is a moral to this sad story, it is this: In planning any economic or development policy, developing nations must make sustainability the primary consideration. It can't be secondary, or ancillary, or "nice to have" or something for an understaffed environmental agency to worry about at a later date. If sustainability is not primary, then any natural, political or structural advantage the nation has will be nullified, sooner or later.

How each nation makes the transition to sustainable development will vary with its economic and political institutions and its culture. In the United States, we have created an elaborate and expensive legalistic system based on complex environmental reviews and command-and-control regulation. This is not necessarily the correct model for the developing world; in fact, I would tend to doubt it, on the basis of my own experience in trying to get it to work properly. Japan has done wonders with its air quality using a quite different system. The point is that developing nations must strive to avoid the development errors that now cost the developed nations tens of billions of dollars each year to fix. If they can afford development, they can afford sustainable development. As we have learned, environmental protection after the fact is too damned expensive.

The national governments of the developed world also have a responsibility here. Resolution of the debt crisis and a resumption of global growth is essential; national programs to help this happen are not in any sense charitable, but rather hard-headed investment in our common future.

Beyond this, national economic policies must be adjusted to encourage sustainable development in the developing world. As I noted earlier, this will cause short-term dislocations in some sectors of some national economies, and governments must prepare to respond to these.

Continued subsidies to agricultural commodities are a major example. Agricultural policies built on short sighted political responses are becoming a critical economic and environmental problem throughout the developed world. Not only do they divert resources from more productive ends -- like investment in sustainable development -- but the resultant surpluses depress farming enterprise throughout the developing world. This crisis is now high on the political agendas of the United States, the European Community, and Japan. It remains to be seen whether these nations will marshal the leadership and wisdom to reform agricultural policy in the face of seductive short term political temptation.

Protectionism and restrictions on the flow of capital are problems of the same type. The developing world cannot grow in the way it needs to grow, absent the free flow of capital. Yet trade barriers are rising in the developed world, largely in response to the development success enjoyed by a small group of nations, mostly in East Asia. Should these barriers hold or continue to rise, there is little hope for the kind of development required to preserve and restore the global environment. History shows again and again that such policies impoverish the protecting nations along with those they would protect us against. Our response to global economic interdependence must not be to erect barriers but to accept the challenge that interdependence offers us and lead the world toward an environmentally sound prosperity.

Developed world governments are often moved to action by the efforts of non-governmental organizations. The environmental organizations in the developed world have, I think, an important role to play. They must become more international and developmental in outlook, so that they can place their ethical force and energy behind the ideas proposed in the World Commission report. There is something unsettling about a world where every day twenty-five thousand people die from easily preventable waterborne diseases. And yet we continue to argue in America about ever smaller increments of pollution abatement with diminishing health benefits. This is like putting another coat of white paint on your house while your neighbor's house goes up in flames. None of the environ- mental values we cherish in the developed world will long survive if sustainable development does not become a reality.

A word should be said here about the notion of pollution havens, since it involves governmental policies in both developed and developing nations. By one estimate in 1980, the industries of developing countries exporting to OECD members would have incurred direct and indirect pollution control costs of over fourteen billion dollars had they been required to meet the pollution control standards then prevailing in the United States. In one sense the developing nations were extracting a subsidy from the environment in order to increase competitiveness.

This is a delicate issue. The developing nations may claim that they cannot yet afford the higher environmental standards, or that our standards are unnecessarily strict. It is probably inappropriate for the developed nations to demand that developing nations simply follow their environmental lead. Yet when the environmental subsidy comes not out of a particular area within national borders nor out of the health of the citizens of one country, but affects the global commons, then it must become the concern of all nations. Working out how the various national policies developed and developing, affect the common interest is a task we have barely started. Both developed and developing nations must work harder on this issue, if the destructive experience of the now-developed world is not to be repeated in every corner of the globe, with possibly irreversible effects on the world environment.

Sustainable development is a difficult lesson. How difficult may be seen in the problems we have had in applying one of its minor corollaries, the concept of sustainable yield in the fisheries industry. Across the world, once-productive fisheries have been destroyed and fishermen have themselves gone under because of failure to grasp the simple lesson that you can't take fish year in and year out faster than they can reproduce themselves.

Will sustainable development require a miracle then? Perhaps, but we have seen miracles enough in our time. Millions of people now alive recall Hamburg as a field of stones and Tokyo as an ash pit. India now not only feeds its millions, but exports food, and will survive the current monsoon failure without the mass starvation such events have occasioned so often in recorded history. Much of the developed world recognized the warnings of Stockholm and acted on them; and the economic disaster many predicted did not occur.

Enormous changes are afoot, and we must develop economic and political systems capable of coping with them, including especially the ability to succor those injured by the changes incident to a move toward sustainable development. The ecological and human consequences of not doing so are, I believe, intolerable.

And there is another consequence, yet more grim. I have not mentioned peace and security, although that is an important focus of the World Commission report. In the past twenty years the developing world has endured over a hundred armed conficts, with a toll of eleven million dead. The world now spends a trillion dollars annually on arms and not a fraction of that to avoid one of the chief causes of the use of those dreadful weapons, namely resource depletion and the subsequent uprooting and emiseration of vast numbers of people. Former Secretary of State, Dean Rusk, has written, "One of the oldest causes of war in the history of the human race, the pressure of people upon resources, is being revived in a world in which thousands of megatons are lying around in the hands of frail human beings." Surely sustainable development is about relieving that pressure, for ourselves, our children and our -- Only One Earth.

The Conservation Foundation

MANAGING CENTRAL AMERICA'S RENEWABLE RESOURCES:

THE PATH TO SUSTAINABLE ECONOMIC DEVELOPMENT

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INTRODUCTION

The seven countries that comprise the narrow Central American isthmus stand, in the late 1980s, at a critical juncture in their political and economic development. Despite the current negotiations for peace, political turmoil associated with military action, social unrest, and fledgling democratic processes remain. This instability persists not only in strife-torn Nicaragua and El Salvador, but as well in Guatemala, Honduras, and Panama. In the economic sphere, every country of the region suffered marked declines in per capita income and serious fiscal crises during the first half of the 1980s as a result of world economic problems, the burdens of debt service, and internal economic instability. And widespread poverty -- accompanied by poor health and nutrition -- remains endemic in most rural areas and in urban slums, even in Panama and Costa Rica, the countries with the highest GDP per capita in the region.

These three crises -- the political, the economic and the social -- are interrelated and inseparable. Political instability undermines economic development; stagnating economic development in the face of rapid population growth adds to the numbers of people living in absolute poverty; extreme poverty coexisting alongside wealth and resources concentrated in the hands of a small percentage of the total population provides fertile ground for still further political chaos. The challenge for all countries of the region is to break out of this cycle of crisis and to forge a stable sociopolitical consensus conducive to long-term, sustainable economic development that benefits all socioeconomic groups.

Events of recent months -- notably the awarding of the Nobel Prize for Peace to Costa Rican President Oscar Arias, the ceasefire between Contra and Sandinista forces and the emergence of political unrest in Honduras over U.S. activities in that country -- have underscored two dramatic shifts in political realities inside and outside the region: 1) No matter what happens in the current peace talks, U.S. political support for the Contras is too fragile to provide a stable base for a long-term American policy in the region, and 2) throughout Central America, the sentiment to give peace a chance all to reduce external intervention is high on all sides.

These sea changes in and around Central America are likely in coming months and years to thrust back into the limelight some very difficult questions for the United States foreign assistance and the international development community -- questions that have been largely ignored for nearly a decade. American foreign policymakers and international journalists have been so preoccupied by the wars in El Salvador and Nicaragua in recent years that they have barely focused on the most pressing human and economic needs confronting the region. U.S. foreign aid to the region has been so lopsided in support of activities relating to the political conflict, and in providing general economic support to friendly states -- notably Honduras, El Salvador and Costa Rica -- that the United States has almost gone out of the development assistance business.

Now, the United States must begin to forge a long-term strategy that will aim to foster democracy and increased economic growth in Central America through the provision of development assistance, rather than through the direct manipulation of regimes and events in the region. The history of U.S. involvement combines with lingering social injustice and economic inequalities in the region to make this a formidable task. How can United States development assistance in Central America be delivered in a manner that responds to popular needs, stimulates necessary social and economic reform, and yet does not undermine the legitimacy of all existing social and political institutions?

I want to argue this morning that at the very heart of Central America's hopes for political, economic and social progress lie issues pertaining to the utilization of the region's land and renewable resources -- forest, soils, water and fisheries. These resources form the backbone of the region's national economies, accounting for more than half of all economic production, half of all employment, and most exports. And their proper management is the keystone to social and economic development.

With few mineral and petroleum resources, the region is heavily dependent upon renewable natural resources in key productive sectors such as agriculture, forestry, fisheries, energy generation, and tourism, as well as to supply the raw materials for most manufacturing and processing industries. In fact, almost 60 percent of the region's 26 million people live in rural areas where they depend directly upon renewable natural resources for their livelihood. Moreover, protection of the natural resource base to preserve clean water and ensure adequate sanitation is a fundamental element in efforts to provide healthy and safe human environments in rural and urban areas.

Yet, paradoxically, Central America's forests, soils, and water resources are being severely degraded and destroyed. Pressures from growing populations and expanding economies are causing people and governments to overexploit the natural resources at their disposal in order to satisfy immediate daily needs, increase employment opportunities, increase current revenues, and avoid difficult political decisions such as the redisturibution of productive lands. As a consequence, depletion rates of forests, soils, fisheries, and other crucial resources far exceed renewal rates, and secondary problems such as soil erosion, sedimentation of hydroelectric dams and coastal harbors, and water pollution have reached critical levels in many parts of the region.

In some instances, this "mining" of the environment facilitates the short-term subsistence efforts of both people and governments. But, already it has contributed to the ongoing, long-term decreases in food production, per capita income, and physical well-being that are occurring in many parts of the Central American region during the 1980s. All of the nations of the region are experiencing direct financial losses and are sacrificing substantial future economic opportunities as a result of careless management of vital renewable natural resources. Continued deterioration of these natural resource systems in the future is likely to further exacerbate problems of political and social instability, economic stagnation, and pervasive rural poverty. Thus, depletion and degradation of the renewable resouce base are formidable constraints to future economic and social development in all seven countries of greater Central America. Conversely, this means that improved management of the natural resource base is critical to achieving greater prosperity.

Although the patterns of resource abuse that cause both economic waste and environmental degradation are clearly visible throughout the region, the international development assistance community has yet to initiate concerted efforts to confront the problems at their source. Indeed, some recent development projects undertaken under the auspices of the two largest multilateral agencies in the region -- the World Bank and the Inter-American Development Bank -- have directly accelerated the destruction.

But the failure to mitigate the direct adverse environmental impacts of the large projects they plan and finance in the region is not the most ecologically damaging and economically questionable result of the past 25 years of international development assistance in the region. What is even more striking is how much the development assistance agencies have done to advance the rate of exploitation of the natural resource base -- building new roads, introducing bigger machinery, opening up new agricultural lands -- and how little they have done to increase the yields or to manage the natural resource base to ensure sustained productivity in the future. The result is that the region's ambitious development programs currently being pursued by international agencies rest on a rapidly shrinking natural resource foundation.

More than anything else, the destruction of key renewable resources throughout Central America is indicative of the fact that much of the so-called economic development that has occurred in recent decades has been based upon highly inefficient and wasteful exploitation of these resources rathern than on increases in economic productivity. Thus, many of the worst environmental problems that today plague the region -- rapid deforestation, widespread soil erosion, sedimentation of dams, waterways and coastal fishing grounds -- are really indicators of gross economic inefficiency and mismanagement in the critical natural resource sectors.

The evidence of the close interrelationship between economic inefficiency and environmental destruction in Central America is pervasive throughout the region.

In agriculture:

- close to half of the farms throughout the region are thought to use land inefficiently or maintain large amounts of land in permanent fallow;
- productivity per hectare of land is low for most crops, with food crop yields in particular reaching as little as one third of the yields in the United States.
- as much as two thirds of the flat, fertile farmland in the Pacific coastal strip of Central America are used

for extensive cattle pasture rather than for crop production; and cattle ranching operations use far more land than necessary and are highly inefficient producers, in part because most of the pasture in the region is left in its native state rather than upgraded and managed.

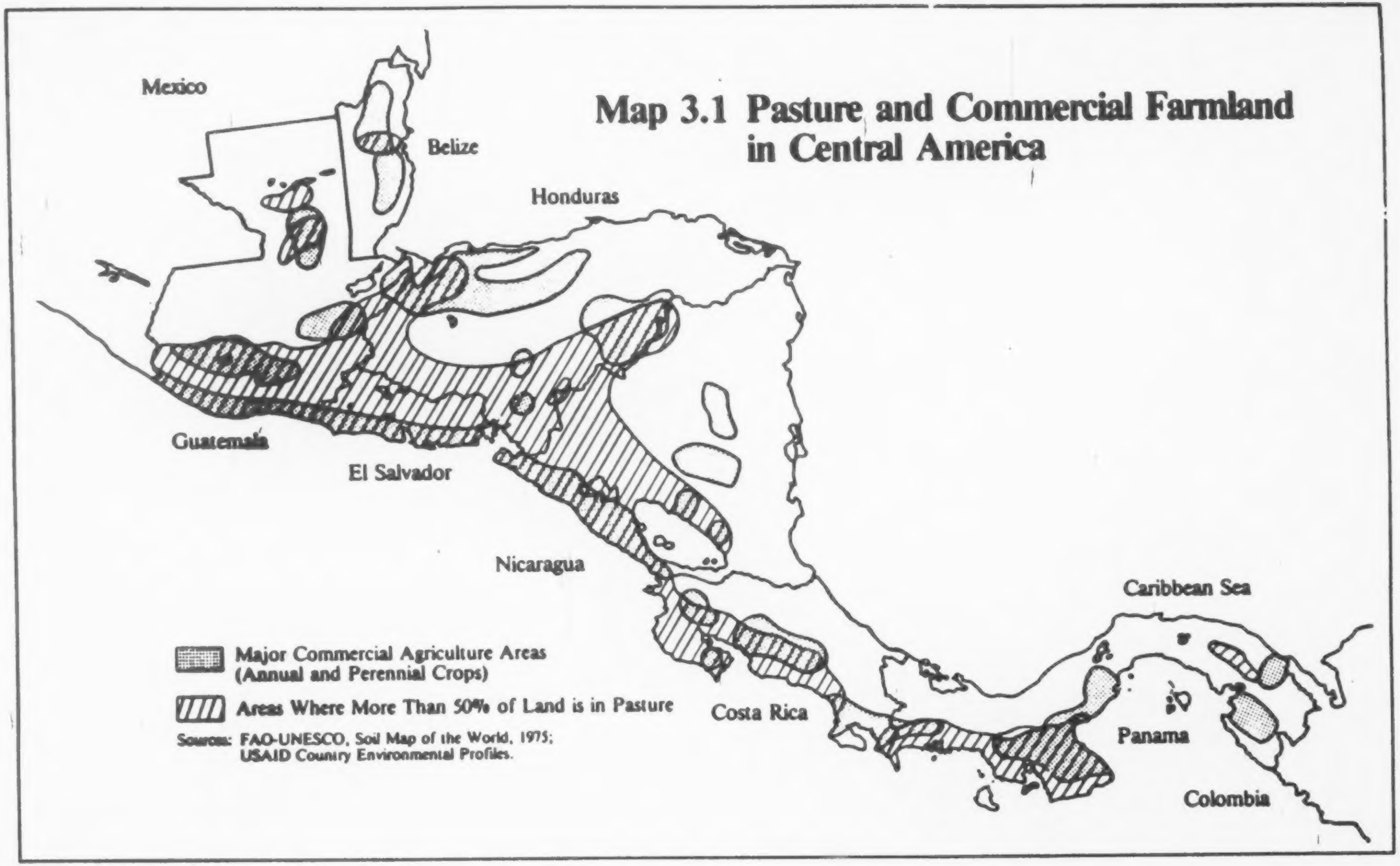
In forestry:

- there is vast waste of cut timber, with only a very small portion of the annual timber cut in the region actually being used for commercial purposes;
- rates of reforestation are very low, amounting to about 7 percent of the annual timber cut across the region;
- little processing is done of raw timber for a wide range of downstream industrial uses, meaning that the region is a net exporter of low-value added timber and a net importer of many high-value added wood and pulp and paper products.

In fisheries:

- overfishing is endemic in coral reef, cay, seagrass, and other near shore areas throughout the region, so much that shortages of high value species such as conch, lobster, and shrimp are becoming major problems in many areas;
- at the same time, development of continental shelf and deep sea fishing industries in most of Central America continues to lag for a lack of not only capital and expertise, but also a lack of entrepreneurial activity;

Map 3.1 Pasture and Commercial Farmland in Central America


Mexico
Belize
Honduras
Guatemala
El Salvador
Nicaragua
Costa Rica
Caribbean Sea
Panama
Colombia
▦ Major Commercial Agriculture Areas (Annual and Perennial Crops)
▨ Areas Where More Than 50% of Land is in Pasture

Sources: FAO-UNESCO, Soil Map of the World, 1975; USAID Country Environmental Profiles.

- there is large-scale wastage of by-catches of edible finfish and potentially useful trashfish which are caught in conjunction with exploitation of shrimp and other high value marine species.

These and numerous other indicators of economic inefficiency in the natural-resource-based industries of Central America are major barriers to future economic development in the region. But they are also major causes of the massive degradation of the region's soil, forest, and water resources that has been documented in this report. Unless the dual problems of economic inefficiency and environmental deterioration are addressed simultaneously in the coming decade, little progress can be expected toward improving the level of social and economic development in Central America. Improved management of soil, water, timber and coastal resources, if it leads to increases in the economic efficiency of the farmers, ranchers, foresters and fishermen whose livelihoods depend on the continued productivity of these natural resources, could therefore be a pivotal factor in sustaining future economic progress in Central America.

In short, I believe that development assistance efforts in Central America must focus more directly on what is happening to the renewable natural resouces upon which almost all economic development programs in the region depend. This means especially that a concerted effort must be made to ensure that these natural resource systems are managed rather than -- as at present -- destroyed as they are inevitably exploited more and more vigorously in coming years.

CENTRAL AMERICA'S ENVIRONMENTAL CRISIS

The looming environmental crisis in Central America manifests itself in the deforested, heavily eroded hillsides one sees around most of the region's major cities; in the mounds of topsoil that have piled up at the mouths of rivers and in the reservoirs and spillways of every dam in the region; and in the spreading areas of denuded, sterile and abandoned soils found in the recently cleared tropical forest areas of the Peten, the Mosquitia and the Darien portions of the region. It is cause for alarm because natural resource degradation in Central America ultimately redounds to hurt the region's rural populations. Many rural families in Central America already live in desperate poverty--at least one-half of those in Honduras, one-third in El Salvador, and one-quarter in Guatemala. The continued impoverishment of the region's natural ecosystems cannot help but further impoverish these nations' rural communities in the future.

Population and Environment

At the core of Central America's environmental crisis are two stark facts:

1. The region's population has exploded. In 1920 there were about 5 million people in the seven countries; by 1960, 12.5 million; by 1987, more than 26 million -- a 400 percent increase over 1920. Central America's population has grown at a faster rate than any other region of the world in recent decades and is now growing at a rate of 2.9 percent a year, higher than all of

Latin America and just about equal to that of Africa. If this rate is maintained, the region's population will doubel again in 24 years. And in Nicaragua, Honduras, and Guatemala -- countries that contain over 60 percent of the region's people -- the annual population growth rate is about 3.5 percent per year.

2. This mushrooming population is over-taxing the region's renewable natural resource base. The problems of rapid population growth are compounded by the limited opportunities in Central America to earn a living in the manufacturing or service sectors and by deep-seated political and economic traditions that constrain access to the most fertile agricultural lands of the region for the majority of people.

...Throughout Central America, these factors have combined to leave the mass of the rural population in a position of dividing up the region's limited resources among more and more people, producing a decreasing amount of the region's basic food requirements, and, especialy in rural areas in recent years, suffering declining standards of living by measures of both per capita income and quality of life indices.

In many instances, the only recourse for much of the rural population in Central America in recent years has been to intensify exploitation of the lands and natural resources around them. This has had devastating consequences for the environment throughout Central America. Many steep and rugged watersheds have been cleared by fire, by extension of agriculture and grazing and by other careless land use practices. This has caused erosion, increasing flooding and mudslides during the rainy season, and has contributed to reduced stream flows during drier times of the year. Serious land erosion is also occurring on less steep lands, primarily because of extensive clearcutting of forests, overgrazing and compaction of the soil by livestock, and the exhaustion of lands cleared for cultivation.

Deforestation

The most important ecological change occurring throughout Central America as a result of population and economic pressurres is the rapid and continuing conversion of forests to other land uses. Today only about one-third of the land area of the seven countries remains forested. That is not unusual in comparison to other regions of the world. What is unusual, however, is the rate at which the Central American landscape is being transformed. For example, it is estimated that two-thirds of all the forests cleared from the time central America was settled have been cleared since 1950. And rates of forest clearing have increased in every decade since 1950. In 1970, 49 percent of Central America was forest and woodland. By 1980 this figure was down to 41 percent -- a loss in one decade of 15 percent of the region's forest cover, or an area larger than the state of Maryland. The time sequence maps of forest cover in Central America in 1950, 1970 and 1985 show how rapidly the region has been deforested in recent decades.

The rate of deforestation has increased every decade since 1950 and shows no sign of slowing. Nicaragua lost more than

1,000 square kilometers of its broad-leaved and coniferous forest each year during the 1970s and 1980s. In Honduras and Guatemala, human activities are destroying at least 900 square kilometers of forest each year, while Panama annually loses 650 square kilometers and Costa Rica, 500 square kilometers. Only Belize, with its small population and low agricultural activity, has been spared such rapid deforestation; but it, too, loses 90 square kilometers of forest each year. In El Salvador, forests are mostly a memory. The tropical forests that once blanketed more than 90 percent of that nation have been cleared for export crops, subsistence farms, pastures, and charcoal production, leaving only a single 20 square kilometer plot of cloud forest relatively undisturbed.

In part, because the forests of the region's Pacific highlands were long ago cleared for agriculture, recent deforestation has been worst in the lowland tropical moist forests, half of which have now been cleared and burned. In these forests, deforestation usually follows a three-stage pattern. First, roads are built, either for transportation or by logging companies and exploration teams seeking to extract commercial timber, minerals, or oil. Then, landless farm families from outside the region or the country filter down these newly opened corridors in search of agricultural land. They clear the forest to plant subsistence crops -- maize, manioc, and rice -- and such cash crops as coffee, chiles, and bananas. After one to three years of harvests, however, weeds, insects, and declining soil fertility tend to reduce the farmers' already low productivity, prompting them to clear additional forest land. But instead of allowing their depleted plots to revert to forest, they frequently devote the land to pasture for grazing beef cattle. Or they sell the plots to cattlemen who consolidate small clearings into beef ranches.

In such a fashion, road construction, slash-and-burn agriculture, and cattle ranching are replacing Central America's lowland tropical forests at the rate of almost 4,000 square kilometers per year. Combined with the continuing degradation of highland deciduous and coniferous forests, this massive conversion of Central American forest land to croplands and grasslands is the most dramatic, human-induced environmental transformation in the region's history.

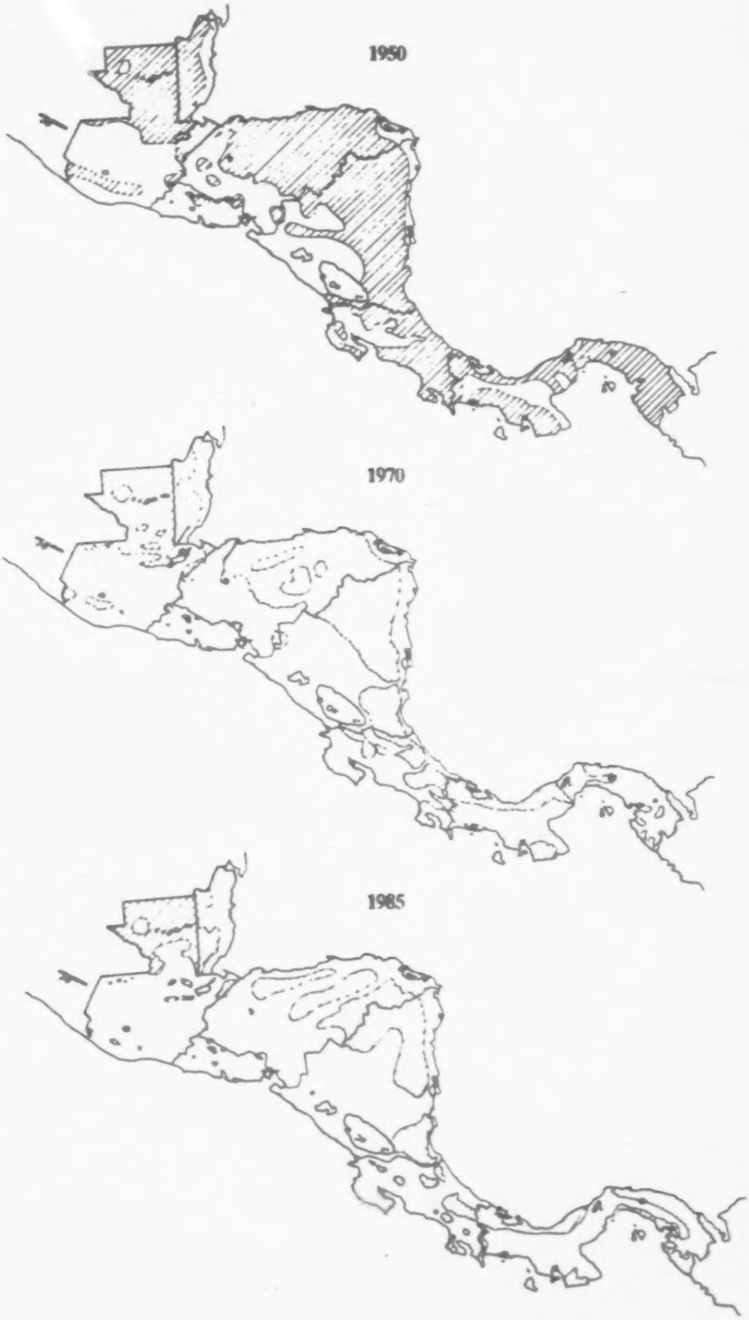
Deforestation has its positive side, of course. It can and has provided land for crops and pasture. But forest clearing in Central America has been economically wasteful. Much of the timber being cut is being burned in place or left to rot in the fields. In fact, as the Table shows, only a very small portion of all the timber cut each year in Central America actually is brought to market, sawed and used for industrial or comemrcial purposes. It is demand for the land, for agriculture and pasture, not commercial demand for the potentially valuable tropical hardwoods, that motors deforestation in Central America. New commercial harvesting of timber contributes significantly to the economy of only one country in the region -- Honduras. And even there it is estimated that timber with a commercial value of $320 million is each year burned on site or left to rot. Moreover, most experts now agree that most of the forest lands with the best agricultural potential have already been cleared. Much of the remaining forests in Central America overlie soils that are of poor quality and subject to rapid deterioration.

Deforestation also is eliminating plant species that may some day prove to be valuable for pharmaceuticals, plant hybrids, or pesticides. About 25 percent of the medicines now produced commercially in the United States are derived in whole or in part from tropical plants. Collecting, screening, and commercializing tropical plants is still a fledgling pursuit in Central America. But there are indications that at least 15 percent of some 1,500 tree species screened in Costa Rica may be potentially useful in treating cancers.

Land Degradation

Another environmental problem with major economic repercussions, land degradation, has reached serious levels in every country in Central America except Belize. Two types of land degradation are widespread in the region: 1) soil erosion leading to loss of topsoils, which is rampant in hillside areas of the region, and 2) soil exhaustion resulting from loss of nutrients and leaching that often occurs when soils of lowland moist tropical forest zones are cleared of their vegetative cover. The major contributing elements to land degradation are extensive deforestation, expansion of cattle raising and agriculture in hillside and mountainous areas, and the absence of sound soil conservation and land management practices.

DEFORESTATION IN CENTRAL AMERICA: 1950–1985*



*Does not include coastal mangrove forests and open pine savanna.

▨ Dense Forest Cover

Sources: USAID Country Environmental Profiles; Heckadon Mereno and Espinosa Gonzalez, 1985; Nations and Komer, 1983.

Land degradation is most serious in the Pacific drainage areas where the majority of Central America's population lives -- about 40 percent of all lands in the Pacific zone suffer erosion rates high enough to undermine the land's productivity. Most critically affected is El Salvador. By 1984, more than 50 percent of that country's land mass was subject to serious soil erosion or was significantly degraded by the combined forces of forest clearing, cattle grazing, and other harmful agricultural practices by peasants and fuelwood gatherers. Although other countries of the region may perceive -- usually wrongly -- that they can compensate for the loss of productive land on their Pacific slopes by reaching into lands on the Caribbean side, El Salvador, with only a Pacific coast, cannot. East of the continental divide, land degradation is most obvious in the interior frontier areas recently cleared for cropping, ranching and colonization. Much of this land is abandoned after only a few growing seasons.

Land degradation and soil erosion lead, of course, to increased amounts of sediment flowing into fresh water streams, rivers, lakes, and coastal bays and estuaries. In Guatemala, for example, the annual soil runoff in areas still covered by vegetation is estimated to vary between 20 and 300 metric tons per square kilometer. In unforested areas, the soil runoff amounts to between 700 and 1,110 metric tons per square kilometer.

This sediment load takes its toll downstream, especially because it can hurt hydroelectric power generation, which has increased more than five-fold in Central America in the past 20 years and provides the vast majority of all electricity generated in Central America. For example, a recent study of Guatemala's new Pueblo Viejo Quixal hydro project found that sediment was accumulating considerably faster than originally estimated at the dam site and in the upper basin. If not corrected, the lifespan of the project will be shortened and generating capacity will fall. The cost of remedial measures to enable the dam to produce at its originally projected rates will be at least $100 million if current siltation rates continue. In El Salvador, too, heavy siltation in recent years has reduced the generating potential of the Cinco de Noviembre project and has greatly increased the cost of maintaining the power-generating equipment. Siltation of reservoirs is already posing problems in newer hydro projects in that country. In Honduras, hydro projects now under construction, at a cost of almost $1 billion, will get their water from watersheds with high sediment rates. yet little has been done to reduce the threat of siltation to these projects. In Costa Rica, which gets 90 percent of its elctricity from hydro projects, the watersheds above virtually every major hydro plant are deteriorating. At one plant, the revenue lost because of sedimentation is estimated between $133-274 million.

The problem extends beyond the borders of individual countries, for many watersheds encompass more than one nation. The Lempa River is one example. Rising in south-central Guatemala and western Honduras, it then flows into El Salvador. It drains 49 percent of El Salvador's territory and provides 93 percent of El Salvador's hydroelectric generating capacity. Yet nearly 8,000 square kilometers of the 18,000-square kilometer Lempa watershed is either in Guatemala or Honduras. Indeed, much of the sediment that is harming El Salvador's hydro plants flows across the borders from Guatemala and Honduras.

Sedimentation has caused other problems too. In Panama, rapid deforestation has led to a doubling of siltation in the lake that supplies water to operate the Panama Canal, the cornerstone of Panama's economy. In Honduras, a rapid buildup of sediment is reducing the capacity of the reservoir that provides water for Tegucigalpa, the capital. In Guatemala, sedimentation reduced the carrying capacity of the Motagua River by 50 percent between 1960 and 1980. This threatens an extensive government-sponsored irrigation program, it has led to increased flooding causing millions of dollars of damage and has reduced the navigable distance on the river.

Destruction of Coastal Resources

Because of its unique location -- a narrow landmass separating the world's two great oceans in a tropical climate -- Central America has been endowed with some of the most beautiful, abundant, and potentially productive coastal resources on earth. Its coral reefs, mangrove swamps, and estuaries provide habitats for commercially valuable shell and fin fish.

But these resources are also now threatened. One contributing problem is overfishing especially in near coastal waters. Fish catches in most coastal areas of Central America grew in the 1960s and 1970s. They have remained relatively stagnant or have declined since then. In Belize, queen conch catches have dropped 75 percent in recent years since peaking in 1972. In Honduras, conch populations have fallen so dramatically that harvesting for commercial or local consumption has virtually ceased. Lobster and open-water shrimp catches have dropped since 1978 when they topped 5,000 metric tons.[23] The governments of the region have tried to stop overfishing by limiting seasons for various species, by limiting the number of boats licensed, and by limiting harvesting and controlling poaching.

Another problem is the continuing and extensive destruction and degradation of crucial coastal habitats. No matter how effective the attempts to control overfishing, future supplies of fish in the region may be reduced unless habitat destruction and degradation is halted. Mangrove forests are the breeding grounds for most species of fish, shrimp, and lobster, yet coastal mangrove forests have been harvested, removed to make way for coastal development, or damaged by man-made pollution at increasing rates in recent years. This problem is only slowly being recognized, and no major efforts have yet been made by any government in the region to preserve, protect, and wisely manage coastal resources.

In Guatemala, Honduras, and El Salvador, mangroves are widely harvested for firewood and for making charcoal. Some areas have been completely destroyed, other degraded. Agricultural runoff also threatens mangroves in El Salvador, Honduras, and Guatemala; the runoffs carry sediment and pesticide residues into the mangrove estuarine waters. In Costa Rica, mangroves have been destoyed to provide bark for the tanning industry (recently outlawed), for salt production, and for coastal development. In Panama, mangrove swamps have been drained, cleared, and filled for urban expansion, mariculture activities, and resort development. Even in underdeveloped Belize, mangroves near Belize City and on several offshore islands (cays) are now being removed or filled for development projects.

It has been estimated that a square kilometer of mangrove estuary can produce a commercial yield of $95,000 per year in fish and shellfish production. Thus, in addition to the ecological damage caused by mangrove destruction, Central American countries have also suffered major economic losses because of mangrove destruction.

Pesticide Misuse and Poisonings

Indiscriminant use of pesticides, many restricted or no longer allowed in the United States -DDT, DBCP, leptophos, and BHC, for example- is one of the most pervasive envoronmental contamination and human health problems in Central America. Many are extremely dangeours; some are toxic to humans, others can cause cancer or sterility. And the levels used, especially in the cotton-raising areas of the Pacific coast, far exceed recommended doses. This, of course, is a major economic cost. Indeed, pesticides now account for nearly 50 percent of agricultural costs in some areas.

The pesticide problem is manifold. Field workers wear little or no protective clothing. Some cannot read or do not understand warning labels. Some wash application equipment in irrigation channels or streams. Since most of the workers' homes do not have running water, workers and their families often bathe in streams contaminated with pesticides. Profligate and careless aerial spraying compounds the problem; in some countries pilots are paid a percentage of the volumen of pesticides sprayed.

The heavy use of pesticide over the years in Central America has destroyed some natural insect predators and has led to the emergence of pesticide-resistant insects. This has been followed by increased pesticide applications -- in some areas from a recommended average of 8 applications to more than 40 per year.

Widespread use and abuse of pesticides has caused many poisonings and deaths. In a recent five-year period, some 19 thousand pesticide poisonings were medically certified -- 17 thousand in Guatemala and El Salvador alone. But record keeping is poor, and it is generally believed that the true human toll is substantially higher. The U.S. Agency for International Development has reported that there are about 1,800 pesticide poisonings per 600 thousand population in Central America each year compared to 1 per 600 thousand a year in the United States.

In some areas of the Pacific coast, 80 kilograms of pesticide are applied on each hectare of cotton, one of the highest uses in the world. One country, El Salvador, used at least 20 percent of the world's total parathion production in a recent year. DDT residues in the tissue of people in cotton-growing areas have been measured at almost seven times higher than levels found in the tissue of urban residents. Very hig levels have also been found in milk and meat samples -- in some milk as much as 90 times higher than the residue level allowed in the United States.

The pesticide problem in Central America has contributed to and has been compounded by a resurgence of malaria in some areas. In 1982, 3,00 cases of malaria were treated in Belize compared to 1,600 in 1980 and 2,075 in 1982. This has made it necessary to increase use of DDT in and around many villages. DDT use is also widespread in Guatemala, Nicaragua, El Salvador, and Honduras.

The people of Central America are not only ones endangered by the gross misuse of pesticide in their region. About 70 percent of all agricultural production in Central America is exported, much of it to the United States. And pesticide use is heaviest on the large plantations, farms, and ranches that produce the key export crop -- cotton, coffee, beef, bananas, citrus, and sugar cane. Although U.S. inspectors have blocked the entry of Central American meat and crops with increasing regularity in recent years because of pesticide contamination, it is likely that some of these contaminated products escape detection. Thus, U.S. consumers may also be exposed to foods from Central America containing high levels of pesticides.

Pesticides also pose a threat to Central America's abundant wildlife. Although no detailed studies have yet been made, a recent Nature Conservancy report noted that the heavy use of peticides in Central America may be adversely affecting North American birds that winter there. Said the report: "It would be ironic if North American migrant birds were suffering from the effects of heavy pesticide use in their non-breeding quarters, just as they were recovering from such usage in their breeding grounds".

PROMOTING ENVIRONMENTALLY SOUND ECONOMIC DEVELOPMENT IN CENTRAL AMERICA

It would, of course, be naive to contend that the current economic and political turmoil in Central America is directly caused by natural resource degradation. The violence and economic stagnation that still undermine Central America's struggle for democracy and economic progress have their roots in long-simmering political struggles, patterns of economic exploitation that are complicated by deep internal divisions along racial, cultural and socio-economic lines, and seemingly endless outside interference in the region's affairs by external powers. Still, it is impossible to examine the region's tumultuous political history without concluding that patterns of land and natural resource abuse in Central America are deeply rooted in the region's past. As many recent historical analyses have pointed out, the exploitation of land, labor, and resources has always been the key to economic and social advancement in Central America.

The ongoing mismanagement of natural resources has clearly exacerbated the current cycle of economic atrophy and violence in the region and, at least in El Salvador, has helped foment political violence. As a 1982 AID report on El Salvador noted, "The fundamental causes of the present conflict are as much environmental as political, stemming from problems of resource distribution in an overcrowded land." In short, it hardly seems surprising that conflicts would emerge in a region where most productive farm land is controlled by a small percentage of the population; where export crop production that benefits the wealthy few has increased markedly while per capita food production has declined; where once abundant natural ecosystems are being severely degraded; and where population stands to double in twenty-four years. And, if resource management does not improve markedly during the next few decades, Nicaragua, Costa Rica, Guatemala, Honduras, El Salvador, Belize, and Panama will face even greater difficulties in coping with their already formidable problems: expanded civil disturbances; worsening rural poverty and human misery, heightened rural-to-urban migration; and increasing potential for economic stagnation.

The current patterns of natural resource degradation in Central America are based upon complex interactions between factors that are relatively easy to identify but extraordinarily difficult to remedy -- they are embedded deeply in the socio-economic fabric of each country in the region. In general, a diagnosis must begin by examining the agricultural sector.

Since about 1950, several dominant economic, demographic and social trends have brought dramatic physical changes to most areas of Central America. Three broad socioeconomic developments, in particular, have set in motion the forces that have fundamentally altered the landscape of the region and led to the inefficient patterns of economic development described in the last section:

1. an ever-expanding need for additional agricultural land caused by rapid population growth, inequitable land distribution and inefficient utilization of already available lands;
2. extension of cattle ranching across perhaps as much as half of the region's prime agricultural lands, primarily in response to export demands and the advice and financial assistance proffered by international development assistance agencies; and,
3. advances in medicine and technology, which have permitted massive assaults on the heavily forested lowlands of the region, and greatly reinformced the predilection for raising agricultural production by cultivating new land instead of by improving yields.

Reassessing Agricultural Development Strategy

Multilateral and bilateral development assistance agencies as well as numerous international private and voluntary organizations are sponsoring a wide range of development activities designed to help the countries of Central America spin out of their current quagmire. But with the chance that peace may at last be possible in the region, and that the United States might soon provide increased development assistance once again, a thoroughgoing re-evaluation of development strategy in the region is in order.

A start -- and not a bad one -- toward this end was made in the report of the National Bipartisan Commission on Central America (the Kissinger Commission), completed in January 1984.

It concluded that many of the problems facing the Central American region are rooted in longstanding patterns of poverty, repression, and inequity. In addition to prescribing a program for U.S. military assistance, political persuasion and diplomatic negotiation, the Kissinger Commission called for a massive program to stimulate social and economic progress in the region.

The social and economic program that the Commission recommended -- aimed at promoting democratization, economic growth, human development and security -- broke new ground, since most past U.S. development programs focused primarily on achieving macroeconomic objectives. The Commission argued that:

> The crisis in Central America cannot be considered in solely economic or political or social or security terms. The requirements for the development of Central America are a seamless web. The actions we recommend represent an attempt to address this complex interrelationship in its totality, not just in its parts.

One of the most important recommendations put forth by the Commission was that agricultural development should be emphasized throughout the region. Noting that the rural areas of Central America not only contain most of the region's poor, but "also have the greatest potential for rapid increases in production," the Commission called for a program to accelerate agricultural development. The Commission concluded that these efforts should focus on the "historically neglected" sector producing food for local consumption because such efforts have enormous potential for improving the welfare of large numbers of people while increasing and diversifying agricultural production and lessening dependence on food imports. Thus, an important and overlooked contribution of the Kissinger Commission was to emphasize, in effect, that agricultural development in the region could not simply come through more investment in large-scale commodity cropping agriculture that has received the overwhelming amount of investment in recent decades.

Since 1984, it has become even clearer that the limits of the international market to absorb Central America's traditional commodity exports -- coffee, sugar, bananas, cotton and beef -- make it imperative that agricultural development efforts focus on two overarching goals: 1) diversification of the commercial agricultural base to reduce economic vulnerability; and 2) increased productivity within the subsistence agriculture sector which provides the vast majority of all rural employment and local foodstuffs. These agricultural development goals must be pursued simultaneously and with equal vigor. All countries of the region need to increase rapidly their foreign earnings through exports, but they cannot afford to do this if the net result is to increase food imports or push greater numbers of the rural poor into burgeoning urban areas where jobs are not available.

Like most developing countries, the Central American countries are currently trying everything possible to diversify their agricultural export base. Indeed, programs supported by the Overseas Private Investment Corporation, the U.S. Agency for International Development, the World Bank, and the Inter-American Development Bank (to name only a few) are already in place in the region to help the countries increase their "nontraditional" agricultural exports -- citrus, spices, ornamental flowers, winter vegetables. Each country is struggling to identify new specialty crops to fill narrow niches in world agricultural markets for the future, and thereby establish its particular comparative advantage. This intense activity to identify new agricultural export commodities for production in Central America is a reflection of changing international consumer tastes and harsh economic circumstances that have buffeted the traditional export crops of the region. The diversification in agricultural production that is resulting is important for all Central American country economies.

Nevertheless, there are potential or continuing problems apparent in these trends as well. While substantial opportunities exist to diversify commerical agriculture into a wide variety of new crops for future export, much greater attention must be paid by both government planners and international development assistance agencies to the potential changes in international agricultural circumstances that could dampen demand for new Central American exports in the future. For example, many of the specialty crops being introduced in order to increase agricultural diversification are heavily dependent upon external inputs, such as fertilizers and pesticides. The costs of producing or importing increased amounts of these inputs could grow considerably. More important, though, is the fact that little is likely to change in terms of the vulnerability of Central American agriculture to capricious trends in international markets. Many of the agricultural commodities being introduced are luxury or consumer fad items, demand for which may fluctuate or fall off permanently.

Long-term evolutions in consumer demand in the United States and other market countries also can have substantial impacts for the small countries of Central America. Already, changing consumer preference in the United States has played a big role in declining demand for Central American commodities, such as sugar and beef; per capita consumption of both has declined in the United States as a result of a growing health consciousness. Future changes could also affect other Central American commodities. For example, African palm is currently being cultivated up and down both coasts of Central America because palm oil is in growing demand as an an inexpensive vegetable oil, particularly for use in commerical bakery and food processing operations. Yet, increased labelling requirements in the United States and publicity about the high saturated fat content in palm oil could significantly dampen these markets in the future.

Another major concern for each country in the region in the future is likely to be the saturation point of international and domestic markets. It is remarkable that the countries in the region, and indeed throughout Latin America and the Caribbean, are all targeting a similar range of agricultural specialities for the future. An open question, of course, is how much production can be absorbed by international markets and whether, as small and notoriously inefficient producers, the countries of Central America will emerge as the least-cost, highest quality supplier of such agricultural products.

Finally, the so-called Lautenberg amendment to the Foreign Assistance Act, passed by Congress in 1986, constrains U.S. development assistance programs from supporting "the growth or production in a foreign country of an agricultural commodity for export which would compete with a similar commodity grown or produced in the United States." To date, neither the Congress nor the Executive Branch has given any indication that rigid interpretation of this stricture is in the offing. Yet, no major agricultural development strategy pushed by the United States government in Central America can be based on the assumption that domestic political pressure to enforce the Lautenberg amendment will not mount in the future.

In contrast to the helter-skelter quest for new agricultural commodity exports, no government in the region is committing nearly enough resources to increasing production in the "historically neglected" sector identified by the Kissinger Commission: the subsistence sector producing food for local consumption. Every country of Central America remains today a net importer of basic foodstuffs, and per capita food production in many parts of the region has actually declined in recent years. A strong policy bias against the domestic agriculture sector in all Central American countries, coupled with increased financial incentives for the development of export-oriented agriculture, have helped discourage commercial agricultural efforts in the production of basic foodstuffs intended for domestic consumption. Thus, while production of agricultural products intended for export has increased, the production of basic foodstuffs has stagnated.

The high level of resources already being deployed to export diversification schemes, the factors that could dampen the prospects for a high degree of export success, and the continuing neglect of the agricultural sector that affects by far the greatest number of people in Central America, all combine to provide a powerful case that the Kissinger Commission was correct: The most important step that the United States and the international development agencies could take is to initiate a regional development assistance campaign that directly targets increasing the productivity of the ten million poor farmers of Central America.

A strong socio-economic development rationale underlies such a prescription, since investment in the rural poor is where many studies have concluded that the greatest possible opportunities for raising economic productivity in Central America lie. But there is also a strong environmental justification for focusing the development challenge in Central America precisely on the masses who toil day-in, day-out to eke out a subsistence living from the land. Helping the rural poor to become better and more efficient producers is the only way to head off an ecologial disaster of massive proportions that is in the making in virtually all of the countries of Central America.

In the final analysis, then, the failure to invest in the rural poor of Central America today will have a huge and detrimental multiplier effect into the future. Not only is the economic opportunity to greatly increase current production, as identified by the Kissinger Commission, being foregone, but the future productive potential of the rural resource base is being squandered by the ongoing environmental destruction. Central America, quite literally, is losing ground that can never be regained.

Toward Environmentally Sound Agricultural Development

In conjunction with the research for my recent book, Natural Resources and Economic Development in Central America, published by the International Institute for Environment and Development, I was privileged to work with nongovernmental organizations from the United States and Cenral America and regional advisors from U.S. A.I.D., to elaborate recommendations for promoting conservation-oriented agricultural development in Central America.

The key components of the integrated program we recommended include increased attention to:

- Rural public works programs.
- Development of local animal feed industries.
- Increased meat production for domestic use.
- Local commodity processing industries.
- Agricultural diversification.
- Improved crop yields in the subsistence sector.
- Improved agricultural extension services for small farmers.
- Introduction of mixed cropping and agro-forestry systems.
- Integrated pest management programs.
- Nitrogen-fixing techniques in agriculture.

All these steps together would cost only a fraction of the hundreds of millions of dollars currently being pumped into the region for non-development assistance. Yet, they would forcefully address the dual problems of economic inefficiency and environmental destruction by simultaneously helping to: create rural employment, slow population migration to overcrowded urban areas, reduce import dependence for essential agricultural inputs, and stave off accelerating deterioration of the region's renewable resource base.

Moreover, while major land reform and changes and economic policies still are required in all of Central America, the steps proposed in this program for sustainable agriculture can be introduced under current political-economic conditions in most rural areas of the region and can rely on techniques and programs that have already proven to work under the prevailing conditions.

Environmental Policies for Development Projects

The major international development assistance agencies that operate in Central America should take a number of important steps to ensure that the projects they sponsor or support do not contribute to greater environmental degradation. All natural resource-based development project proposal, a plan of action to ensure that there is no significant deterioration of the natural resources affected. This is only prudent because ultimately the long-run productive returns to these investments are going to depend on continuing management of these natural resource systems. In particular, the following policies should be established:

- Forest management and reforestation programs for all timber harvesting, wood processing, and wood-consuming projects;
- Upland watershed management for hydroelectric and water supply projects;
- Integrated pest management in conjunction with commercial agricultural projects;
- Mangrove, coral reef, and other marine habitat protection in tandem with fishery development projects;
- Environmental impact analysis and alternative routing studies for all major road-building projects;
- Land capability studies for potential development sites in frontier zones of the Caribbean region.

Improving Regional Environmental Management

No governments in the Central American region currently have available adequate baseline data with which to make important development planning decisions about the uses of their essential natural resources. Furthermore, all countries lack specialists trained in environmental sciences and natural resource management to design and implement needed natural resource programs. Thus, international donors should help to better the capabilities of regional organizations and national governments by improving critical natural resource information and upgrading the human resources to manage natural resources. These should include programs that target:

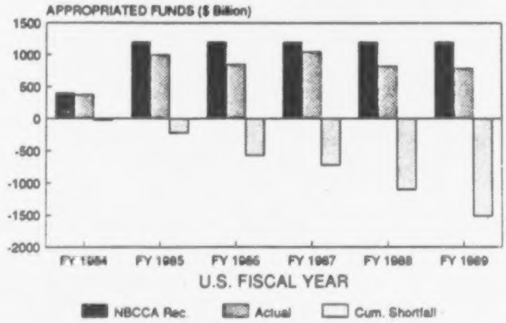
- Improved land capability and land use information.
- Promulgation of regional land use and development goals.
- Development of guidelines for managing special ecosystems.
- Greater attention to the interdependence between conservation and development programs.
- Increased watershed management and soil conservation programs for small farmers, especially in areas with potentially fragile lands --steep slopes, high rainfall, etc.
- Introduction of a regional program for monitoring and reducing water pollugion from sewage and industrial sources.
- Increased support for marine and coastal resources development and protection.
- Initiation of a coordinated program to screen genetic resources of the region, assess the economic values of critical wildlands and wildlife, and provide regional support for wildlands and wildlife protection areas.
- Encouragement of a regional program to preserve, protect, and record the rich and diverse cultural resources of Central America.
- Creation of a regional scholarship fund for training in environmental sciences and natural resource management.

FOUR YEARS OF PROGRESS

THE
CENTRAL AMERICA INITIATIVE
1985 - 1988

U.S. AGENCY FOR INTERNATIONAL
DEVELOPMENT

CENTRAL AMERICA INITIATIVE FUNDING RECOMMENDED AND ACTUAL LEVELS

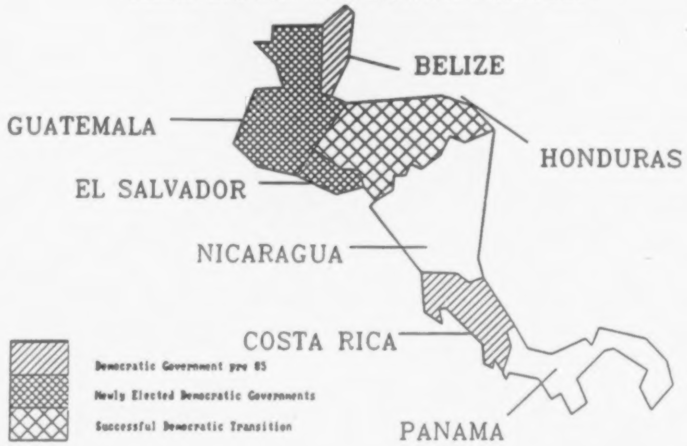


FY 1989 is Congressional Presentation

True to the National Bipartisan Commission on Central America (NBCCA) recommendations, the Central America Initiative (CAI) has focussed on arresting the disasterous economic decline of the early 1980's, putting in place the policies and institutions needed for a sustainable growth, ensuring broader participation in the economic and social gains, and strengthening democratic institutions and human rights. Initial funding for the CAI began with the FY 84 Supplemental of $400 million. The NBCCA proposed $6 billion in U.S. economic assistance over a five year period beginning in FY 85. U.S. economic assistance to Central America for the four year period FY 85-88 totaled $3.9 billion The administration is requesting an additional $736.2 million in economic assistance for FY 89.

The data in the following charts exclude Nicaragua and Panama unless otherwise specified and are the latest available estimates, drawn from A.I.D., international agency or host country sources.

DEMOCRACY IN CENTRAL AMERICA


BELIZE
GUATEMALA
HONDURAS
EL SALVADOR
NICARAGUA
COSTA RICA
PANAMA
Democratic Government pre 85
Newly Elected Democratic Governments
Successful Democratic Transition

The U.S. goal in the area of Democratic Initiatives is to help the Central American countries in their establishment and strengthening of participatory democracies. The longstanding democracies of Belize and Costa Rica remain stable. Popularly elected civilian governments are in place in Guatemala, El Salvador and Honduras -- countries previously long ruled by military regimes. Though facing multiple economic and social problems, these societies are moving steadily forward to strengthen the institutional and attitudinal underpinnings of their nascent democracies. In Panama democracy has been set back by a growing domination of the military and Nicaragua continues to be ruled by the marxist Sandinistas.

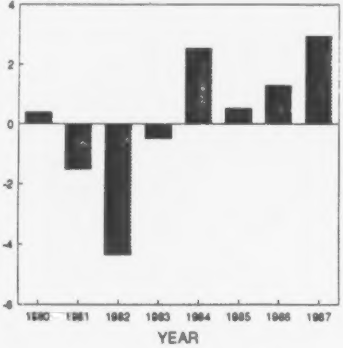
MACROECONOMIC INDICATORS

Central America, 1983 and 1987

After falling sharply during 1981-83, GDP growth has been positive since the CAI began in 1984. GDP growth in 1987 was the highest in this decade. Belize and Honduras (4.0% each) and Costa Rica (3.7%) showed encouraging growth during 1987. Guatemala stabilized in 1986 and had poistive growth in 1987. 1987. Part of the impetus to growth came from economic stabilization. As indicated below, fiscal deficits have declined from 6% of GDP in 1983 to 2.5% in 1987.

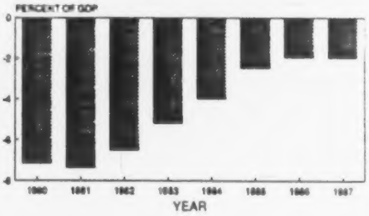
Indicator	1983	1987
GDP Growth Rate	-0.5%	+2.9%
Government Fiscal Deficits (% of GDP)	6.0%	2.5%

REAL GDP GROWTH RATES
A.I.D. ASSISTED CENTRAL AMERICA

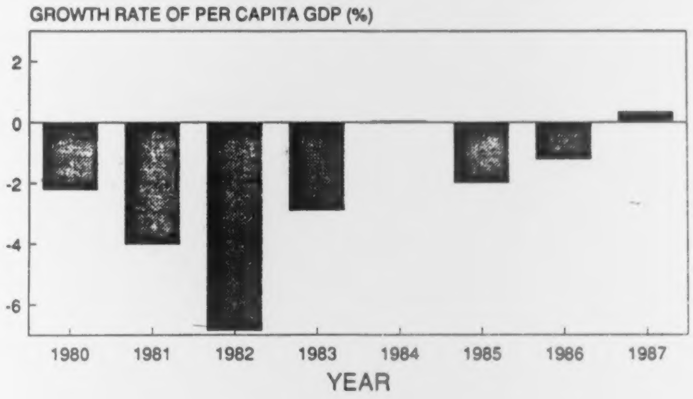


Weighted Average for 5 countries

CENTRAL AMERICA
PUBLIC SECTOR DEFICITS



A.I.D. Assisted Countries



CENTRAL AMERICAN PER CAPITA GDP
ANNUAL CHANGES 1980-87

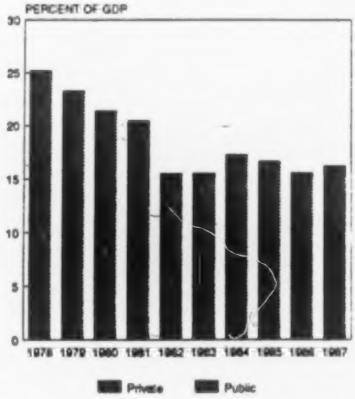
Per capita GDP fell sharply each year from 1980 to 1983. With U.S. assistance, the decline was slowed in 1985 and 1986, and positive per capita growth of 0.3% was achieved in 1987. With stabilization in most countries, and economic reforms being enacted, we expect per capita GDP growth to steadily rise. For 1988, our projections are for per capita growth of about 0.8%, rising to 2.5% by 1993.

MACROECONOMIC INDICATORS
Central America, 1983 and 1987

Indicator	1983	1987
GDP Growth Rate	-0.5%	+2.9%
Private Investment (% of GDP)	7.6%	10.6%
Private Capital Flows	-$12 million	+$277 million
Nontraditional Exports to U.S.	$290 million	$808 million

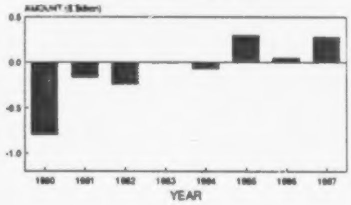
Private investment as a percentage of GDP rose from 7.6% in 1983 to 10.6% in 1987, while private capital flows climbed from -$12 million to +277 million.

CENTRAL AMERICAN INVESTMENT AS PERCENT OF GDP

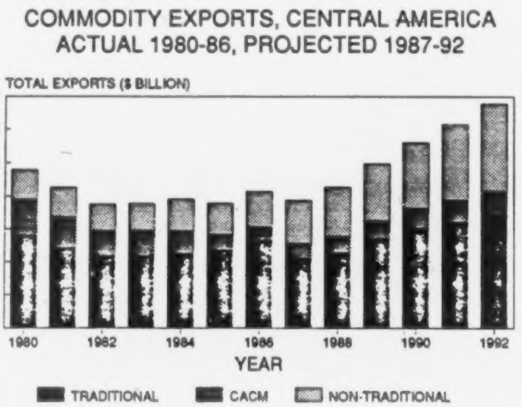


A.I.D. Assisted Countries

PRIVATE CAPITAL FLOWS CENTRAL AMERICA, 1980-87

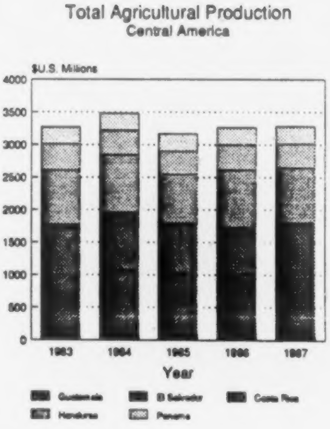


A.I.D. Assisted Countries



To finance the imports needed to sustain higher growth, small economies like those of Central America need a steadily expanding source of export earnings. In addition, dynamic export growth dictates increases in productivity, the best guarantor of growth in real incomes. Prospects for Central America's main traditional exports -- coffee, sugar banana, cotton, and beef are poor to moderate. A.I.D. is promoting diversification into labor-intensive, nontraditional agricultural and industrial products.

We are seeing results. Nontraditional commodity exports from the four Central American countries grew as a proportion of overall exports from 21.6% in 1983 to 34.6% in 1987. Costa Rica led the way with an average annual increase of 19% -- $350 million in 1987.



USDA/ERS figures
(Millions $ at constant prices)

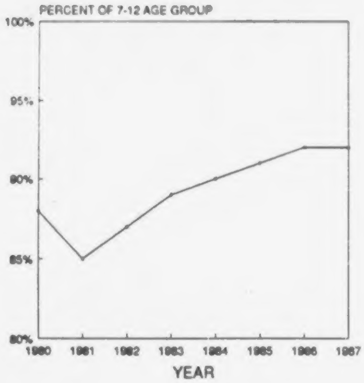
EDUCATION INDICATORS
Central America, 1983 and 1987

Indicator	1983	1987
Primary School Enrollments	2,710,000	3,488,000
Percent of age 7-12 population (gross)	86%	92%
Primary School Completion Rate	59%	61%
Central American Peace Scholars	--	6,275

Since 1985, 93,000 teachers have been trained; 5.3 million textbooks distributed and over 2,500 classrooms built or renovated. Primary school enrollment increased from 2.7 million in 1983 to 3.1 million in 1987, and the percentage of 7-12 age population attending school moved up to 90%. The primary school completion rate moved from 56% to 61%.

Some 6,275 Central American Peace Scholars have compeleted training in the U.S. or are still in training. About 22% are in University degree programs.

GROSS ENROLLMENT RATIOS, 1980-87
CENTRAL AMERICAN PRIMARY EDUCATION



CENTRAL AMERICAN PEACE SCHOLARS
(CAPS)

	SCHOLARS
1985	1,130
1986	2,582
1987	2,477
TOTAL TO DATE	6,275
NBCCA TARGET BY 1989	8,500

SOCIAL INDICATORS
Central America, 1983 and 1987

Approximately 64% of children under 2 years of age are now immunized against the basic childhood diseases.

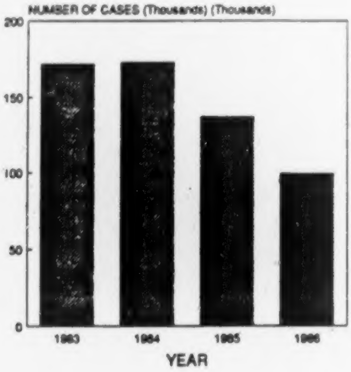
The number of malaria cases dropped from 171,000 in 1983 to 99,000 in 1987 and should decrease further in 1988.

An AIDS awareness and public education program is underway in each country.

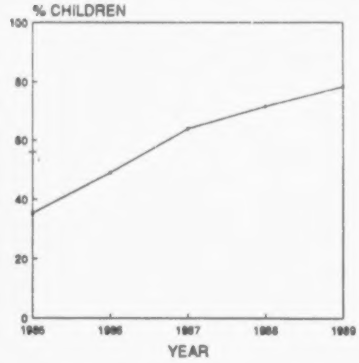
Progress in increasing access to potable water is being made with 60.8% of the population covered, up from 57.5% in 1983.

Indicator	1983	1987
Infant Mortality per 1,000 births	61.1	56.9
Malaria Cases	171,000	99,000
Couples using Family Planning	1,150,000	1,567,000
Percent Coverage	37.5%	43.4%

MALARIA CASES REGISTERED
CENTRAL AMERICA, 1983-86



CHILDREN FULLY VACCINATED
HONDURAS, GUATEMALA AND EL SALVADOR

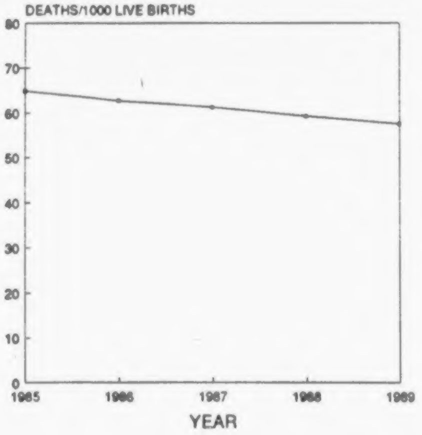


Infant mortality has dropped from 61.1 per thousand in 1983 to 56.9 in 1987.

-- In Honduras, increased access to improved water and sanitation, and the introdution of oral rehydration therapy have helped reduce diarrheal mortality by 40% (to an estimated 550 deaths annually). Some 80% of children under 5 years have received the complete set of vaccinations.

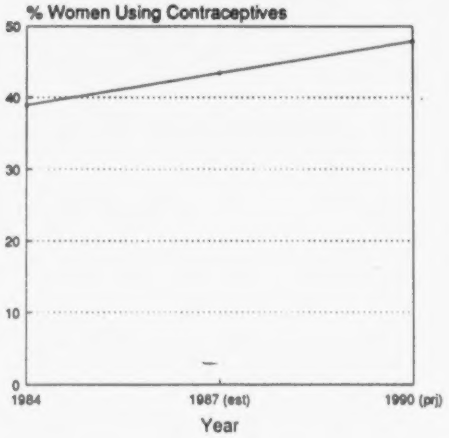
-- In El Salvador in 1987, 186,459 vaccinations were given, 88% through "well baby" and immunization clinics and 15% through community campaigns.

INFANT MORTALITY RATE
CHILD SURVIVAL EMPHASIS COUNTRIES



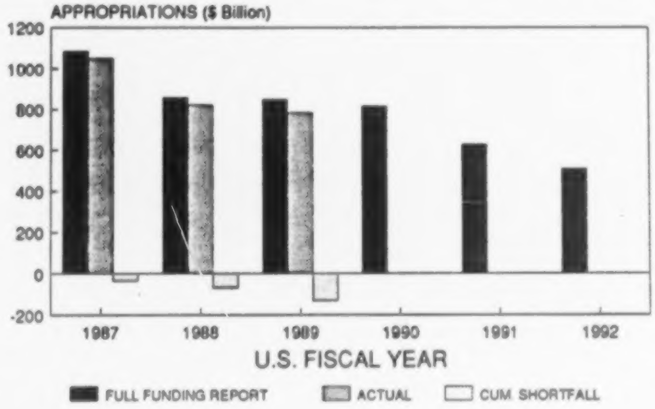
Honduras, Guatemala and El Salvador

COUPLES USING CONTRACEPTIVES
(thousands)



The right of access to voluntary family planning information and services is recognized by all the Central American governments, and in Guatemala under the constitution.

Today 1,587,000 or 43% of couples of reproductive age practice family planning as compared to 37.5% in 1983. By 1990, an estimated 2,000,000 couples will opt for voluntary family planning.



REVISED CENTRAL AMERICA FUNDING
FULL FUNDING REPORT VS. ACTUAL LEVELS

FY 1989 is Congressional Presentation

The Full Funding Plan for the CAI submitted to Congress in March 1987 concluded that, although some of the original asumptions of the Initiative had proved optimistic, substantial progress was being made. It recommended that the implementation period for the CAI be extended from FY 1989 through FY 1992, with total funding of $6.9 billion. The NBCCA proposed five year funding (through FY 1989), of $6.0 billion. Funding for the CAI has been substantial, but has lagged behind the NBCCA recommendations due to overall funding shortfalls and budgetary constraints. Through FY 1988 approximately $ 3.3 billion will be provided, about $ 1.0 billion below the recommendations of the NBCCA.

ECONOMIC ASSISTANCE TO CENTRAL AMERICA
(ESF, DA, PL 480 and Disaster Assistance)
($ MILLIONS)

	PRE NBCCA	ORIGINAL NBCCA PLAN						STRETCH OUT PERIOD		
	FY 80-84 YEARLY AVERAGE	FY 85 ACTUAL 1/	FY 86 ACTUAL	FY 87 ACTUAL 2/	FY 88 OYB	SUB TOTAL FY 85-FY 88	FY 89 REQUEST	FY 90 FULL FUNDING 4/	FY 91 FULL FUNDING 4/	FY 92 FULL FUNDING 4/
TOTALS	375.3	1,252.0	816.9	1,071.9	781.7	3,922.2	736.2	786.0	598.0	479.0
BELIZE	10.3	21.7	8.8	12.6	7.4	50.5	9.4			
COSTA RICA	91.7	262.3	147.7	175.4	116.6	702.0	97.0			
EL SALVADOR	163.0	425.4	310.8	452.1	324.7	1513.0	292.5			
GUATEMALA	17.4	94.6	105.6	177.5	130.8	508.5	137.1			
HONDURAS	71.4	217.9	122.8	187.8	140.0	668.5	142.1	REMAINING FUNDING REQUIRED FY 89 - FY 92: 2,681.0		
PANAMA	9.0	68.8	24.5	8.4	2.2	103.9	0.0			
ROCAP	12.6	106.6	25.0	36.3	28.7	196.6	24.5			
CA REG WASH. 3/		54.7	71.7	21.8	31.3	179.5	33.6			

1/ Includes FY 84 Supplemental

2/ Includes FY 87 Supplemental

3/ Central America Regional/Washington account was not created until FY 86

4/ The Full Funding Report Included Funds for Panama

(2045k)

CENTRAL AMERICAN INITIATIVE

PROGRESS INDICATORS

APRIL 12, 1988

MACROECONOMIC INDICATORS

Central America, 1983 and 1987

Indicator	1983	1987
GDP Growth Rate	-0.5%	+2.9%
Private Investment (% of GDP)	7.6%	10.6%
Private Capital Flows	-$12 million	+$277 million
Government Fiscal Deficits (% of GDP)	6.0%	2.5%
Nontraditional Exports to U.S.	$290 million	$608 million

Excludes Nicaragua and Panama

EDUCATION INDICATORS
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Indicator	1983	1987
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Percent of age 7-12 population (gross)	86%	90%
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Excludes Nicaragua and Panama

SOCIAL INDICATORS
Central America, 1983 and 1987

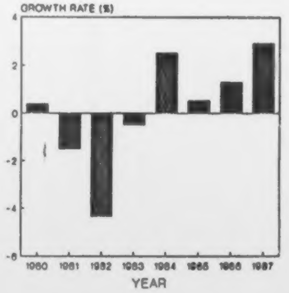
Indicator	1983	1987
Infant Mortality *per 1,000 births*	61.1	56.9
Malaria Cases	171,000	99,000
Couples using Family Planning	1,150,000	1,587,000
Percent Coverage	*37.5%*	*43.4%*
El Salvador Land Reform:		
Phase I Titles	41	240
Phase III Titles	5,456	22,622

Excludes Nicaragua and Panama

CAI ACCOMPLISHMENTS

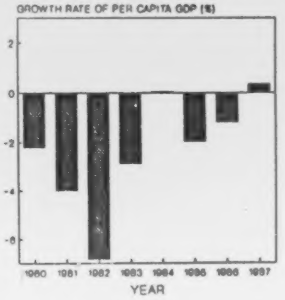
- Positive Economic Growth
- Reduced Fiscal Deficits
- Rapid Nontraditional Export Growth
- End to Capital Flight
- Improved Export Institutional Structure
- Privatization

REAL GDP GROWTH RATES
A.I.D. ASSISTED CENTRAL AMERICA

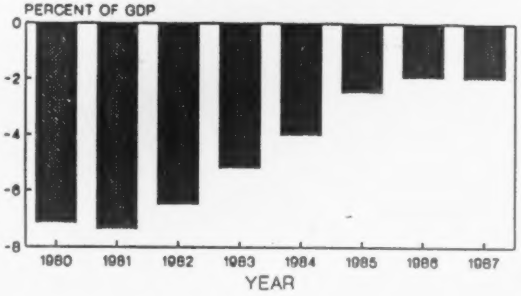


Weighted Average for 8 countries

PER CAPITA GDP GROWTH
1980-87

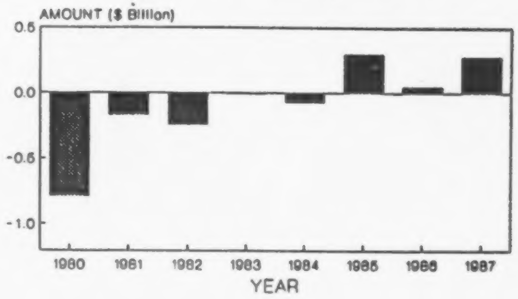


CENTRAL AMERICA
PUBLIC SECTOR DEFICITS



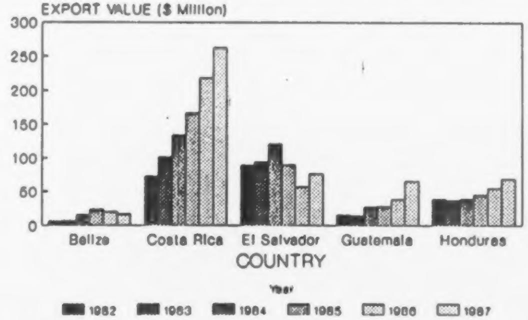
A.I.D. Assisted Countries

PRIVATE CAPITAL FLOWS
CENTRAL AMERICA, 1980-87



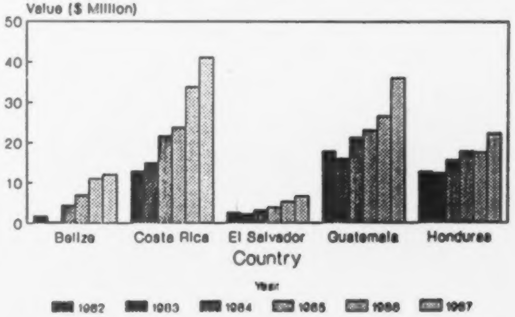
A.I.D. Assisted Countries

CENTRAL AMERICA
MANUFACTURED EXPORTS TO U.S.A.



Based on U.S. Import Data

NONTRADITIONAL AGRICULTURAL EXPORTS
TO THE UNITED STATES, 1982-87



Based on U.S. Import data

PREPARED STATEMENT OF
MALCOLM BUTLER
DEPUTY ASSISTANT ADMINISTRATOR
BUREAU FOR LATIN AMERICA AND THE CARIBBEAN
AGENCY FOR INTERNATIONAL DEVELOPMENT
BEFORE THE
SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY,
TRADE, OCEANS AND ENVIRONMENT
COMMITTEE ON FOREIGN RELATIONS
U.S. SENATE
WASHINGTON, D.C.
APRIL 27, 1988

Environmentally Sustainable Development in Central America

Thank you for giving the Agency for International Development (A.I.D.) the opportunity to testify before your Subcommittee. These hearings will make clear that the environmental problems facing Central America today are enormous. I hope they will also make clear that the American people can be proud of the contributions their tax dollars are making to dealing with these problems.

A.I.D.'s overall program to assist the countries of Central America to achieve sustained economic development will strengthen their ability to consolidate stable democracies and productive partnerships with the United States. We have achieved some important successes in macroeconomic, but also very human, terms. I would like to submit separately for the record a brief summary of that progress, entitled "Four Years of Progress: The Central America Initiative, 1985 - 1988."

Central American development, however, must be built on a bedrock of environmentally sound policies and programs, not the quickfixes of short-term resource exploitation. Development in Central America is overwhelmingly tied to the region's natural resources; its soil and water, its wildlife and fisheries, its forests and minerals. Important economic and social sectors such as agriculture, energy, health and tourism depend heavily on the long-term sustainability of this natural resource base.

Because of the richness of Central American natural resources, the countries of the region have historically treated them as a limitless endowment, to be exploited rather than managed. Over the past decade, however, this perception has been changing, and I am proud to say that A.I.D. has played a leading role in supporting this change. We have ensured the environmental soundness of every project we support, we have undertaken environmentally proactive projects and we have kept environmental issues high on our policy agenda.

We agree with you, Mr. Chairman, that we must find ways to safeguard the region's fragile ecosystem while enhancing growth and opportunity. Like you, we see development as being inextricably linked to environmental management. Growth makes sense only when it is achieved in an environmentally sustainable way. When a project is disastrous environmentally, it is disastrous developmentally, regardless of its short-term return. This linkage is a fundamental economic issue as A.I.D. makes its decisions on which programs truly advance a country economically.

We recognize that even our active program is modest in relation to the enormity of the problem. However A.I.D. is constrained by declining budget resources and by pressing needs in many other important sectors, including child survival, family planning and support for the modern private sector.

Nevertheless, in this fiscal year A.I.D. will have in Central America 14 major ongoing projects with environmentally sustainable development as their principal objective or as a major component. We will obligate 11 million dollars to these projects; their total life-of-project is 99 million dollars. This funding represents more than half of our present environmental portfolio for all of Latin America and the Caribbean.

A few examples illustrate our commitment and our active portfolio.

In Guatemala, our Small Farmer Diversification project includes training in pest management and soil conservation. The Highlands Agricultural Development project incorporates soil conservation, agroforestry and reforestation. Our Non-formal

Education project provides a wide range of information, including natural resource management advice, through radio shows, bulletins and a rural newspaper.

In Honduras, the Natural Resources Management project successfully established the Honduran government's Natural Resource Management Directorate while extending soil conservation, watershed management and forestry within a demonstration watershed. A follow-on project will integrate the lessons learned over a much broader geographic area. The U.S. Forest Service will implement the Forestry Development project to develop and implement a plan for sustainable management of commercially valuable pine forests. Yet another project includes coastal zone planning assistance.

In Costa Rica, A.I.D. recently completed a large Natural Resources Conservation project which included watershed management, agroforestry, reforestation, environmental education and park management. We also have used local currencies to help establish the Zona Protectora, an important strip of park land and to create and manage the Cano Negro wildlife reserve. This year a new 22 million dollar project will focus on buffer zone forest management around three large national parks and involve an indigenous Non-governmental Organization (NGO), the Fundacion Neotropica, in its implementation. We will add a large watershed management project in Fiscal year 1989.

A.I.D. ended its Panama program in December 1987, for reasons of which you are doubtless aware. We were days away from beginning what would have been our largest environmental project, a ten-year, 51 million dollar natural resource management effort to support advanced watershed management, forestry, environmental education and park development. When A.I.D. returns to Panama, I hope we will be able to pick up on this promising activity.

Earlier, we helped the World Wildlife Fund - U.S. establish a federation of counterpart Panamanian NGOs known as the Fundacion PANAMA. We also recently completed a small but highly effective grant to the indigenous Panamanian people known as the Kuna. The Kuna were assisted in preserving the environmental quality of their near pristine reserve, and are now managing their reserve for ecotourism while maintaining their heritage of living closely with nature.

ROCAP, our Central America regional office, funds a project to develop improved fuelwood production and fast growing tree species. Another project is extending the research results of the Fuelwood project; on-farm forestry using fast growing tree species is increasing throughout the region. Other projects train Central American environmentalists at the Master's level in Costa Rica, and conduct research and disseminate information. A major new Natural Resource Management Support project is planned for fiscal year 1989. That project will include support for the region's indigenous environmental NGOs.

In response to Section 119 of the Foreign Assistance Act, A.I.D. funded five biological diversity activities in fiscal year 1987. Two of these are in Central America; they leveraged matching funds on at least a one-for-one basis. The Hol Chan Marine Reserve on the Belize barrier reef is a collaborative project with the World Wildlife Fund and Government of Belize to establish and manage a multi-use marine park on this important reef ecosystem. The Costa Rican Corcovado National Park Buffer Zone project, known as BOSCOSA, is a collaborative effort with the Conservation Foundation, the Fundacion Neotropica and the Costa Rican Park Service. This activity is investigating how local people can farm around a national park without degrading their land and moving into the park.

Our fiscal year 1988 biodiversity activities include a proposal in Costa Rica to train park managers in biodiversity surveying in their own parks. We are also considering a proposal in Belize to work with the New York Botanical Garden and the National Cancer Institute to conduct ethnobotanical surveys of the flora used by Mayans in traditional medicine.

Still other activities in Central America include a study by the World Wildlife Fund on the extent of ecological tourism in Belize and Costa Rica, a training course for key Central American government officials at the Organization for Tropical Studies' Jungle Research Station in Costa Rica, and promotion of soil conservation and agroforestry in El Salvador.

The Bureau for Latin America and the Caribbean has played a leadership role within the Agency in promoting environmentally sustainable agricultural development. Our agricultural officers recommended a joint effort with our Science and Technology Bureau to assist countries in our region to adopt effective strategies for fragile lands management. The resulting ten year, six and one-half million dollar project provides leadership to Agency-wide efforts and also supports greater coordination with other donors. Last September this project organized a regional conference in Ecuador on Sustainable Uses for Steep Slopes. Another conference, scheduled for 1990, will focus on resource management problems of the humid tropical lowlands.

In conclusion, Mr. Chairman, A.I.D. is leading by example on the complex issues of environmentally sustainable development in Central America. We are committed to this goal for the long term, and we feel that Central American countries with which we are working are rapidly coming to share the vision. It is a collaborative effort, however, which would not be possible without the growing concern of host country governments, the expertise and commitment of local and U.S. NGO's, and the continuing support for the U.S. foreign assistance program by Congress.

The foreign assistance budget is shrinking, and the countries we assist are struggling to cope with suffocating debt burdens and staggering social needs. We recognize, however, that we have let environmental problems get ahead of us, and we have some catching up to do. We share your concern, Mr. Chairman, and we agree with you that we must ensure that every dollar spent is used not only for economic growth, but for development which is truly sustainable.

TESTIMONY

OF

DAVID A. WIRTH

ON BEHALF OF

NATURAL RESOURCES DEFENSE COUNCIL
NATIONAL WILDLIFE FEDERATION
SIERRA CLUB
ENVIRONMENTAL POLICY INSTITUTE
ENVIRONMENTAL PROJECT ON CENTRAL AMERICA, EARTH ISLAND INSTITUTE

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY, TRADE, OCEANS AND THE ENVIRONMENT

SENATE COMMITTEE ON FOREIGN RELATIONS

APRIL 27, 1988

I am David A. Wirth, Senior Attorney with the Natural Resources Defense Council (NRDC). I appreciate the opportunity to testify today on behalf of NRDC, the National Wildlife Federation (NWF), the Sierra Club, the Environmental Policy Institute (EPI), and the Earth Island Institute's Environmental Project on Central America (EPOCA). These organizations have a combined membership of more than 5 million concerned individuals distributed through every state.

Mr. Chairman, I hope to provide this Subcommittee with a general perspective from the point of view of U.S.-based environmental nongovernmental organizations (NGOs). The organizations I represent today are all concerned broadly with promoting sustainable development -- development that makes sense in the long term for people and the environment. We try to work closely with our counterparts in the developing world, including Central America, to influence policies of donors such as the U.S. Agency for International Development (A.I.D.), the World Bank, and the Inter-American Development Bank (IDB).

In my testimony today, I would like to use several examples to illustrate ways this Subcommittee can help deal with pressing environmental problems in the region. First, I will discuss a joint program proposed by the Department of Agriculture (USDA) and A.I.D. to eradicate Mediterranean fruitfly from Guatemala and ultimately all of Central America. This project demonstrates the critical necessity for close attention to the environmental consequences of U.S.-supported activities in the area. Next I will address the environmental concerns surrounding donor-financed development assistance projects, with World Bank and Inter-American Development Bank (IDB) loans as examples. Last, I will discuss the environmental effects of militarization and an exciting new "Peace Through Parks" initiative through which governments in the region are cooperating simultaneously to encourage peace and environmental protection.

1. U.S.-FINANCED PESTICIDE ABUSE

NRDC, the Sierra Club, and NWF have been working for nearly two years with a coalition of organizations representing environmental, academic, and economic concerns in Guatemala and Costa Rica to terminate two environmentally harmful, economically wasteful, and unnecessary projects proposed by USDA and A.I.D. for Central America. The two projects are MOSCAMED, a plan to eliminate the Mediterranean fruitfly (medfly) from Guatemala using aerially sprayed toxic chemical pesticides, and CAPMED, a similar program covering all of Central America.

Medfly has already been eradicated from Mexico using United States funds, and USDA is maintaining a "barrier" in Guatemala to prevent reinfestation. The next phase of MOSCAMED would extend eradication efforts to other areas of Guatemala in part with USDA funds and in part with P.L. 480 "Food for Peace" local currencies, which USDA administers jointly with A.I.D. The project as currently envisioned would cost approximately $30 million over a 4-year period and would involve extensive reliance on the pesticides malathion and methyl bromide. MOSCAMED and CAPMED anticipate the widespread and indiscriminate aerial spraying of a malathion-laced bait. The fumigant methyl bromide would be used to treat produce moving from a fly-infested area to a fly-free zone.

CAPMED would push the barrier currently in Guatemala to the Darien Gap in Panama at an estimated cost of $350 million over a 9-year period. Although other countries may contribute to the project, with the United Nations Food and Agriculture Organization playing a coordinating role, the bulk of CAPMED's massive cost -- nearly half of which would go for pesticide purchases -- would be shouldered by the United States.

Malathion is a broad-spectrum insecticide which could have adverse effects on honeybees, fish, and shellfish of commercial importance in the region. It could also harm other potentially beneficial insect species, such as pollinators of economically important crops like cardamom, and could substantially reduce biodiversity and deplete endangered species in the area.

Public protests forced USDA and the Government of Guatemala to abandon the use of use of ethylene dibromide (EDB) -- a deadly cancer-causing fumigant that has been banned for use in the United States -- in favor of methyl bromide. The substitution of methyl bromide, which also presents extreme hazards to human health, can hardly be considered an improvement over EDB. The Environmental Protection Agency describes methyl bromide as "highly acutely toxic," and effects on the kidneys and lungs of exposed workers are well documented. There are also indications that methyl bromide causes cancer and birth defects. Moreover, there are numerous data gaps for this pesticide that make informed decisions about its use impossible. This is particularly true if the pesticide is proposed for use in Central America, where precautions to reduce health and environmental risks are likely to be fewer than in the United States.

Moreover, there is absolutely no urgency to proceeding with either MOSCAMED or CAPMED now or in the foreseeable future. USDA's 1985 "Technical Report" recognized that the risk of a U.S. infestation from all of Central America is less than one-tenth that posed by produce shipped to the mainland from Hawaii. Significantly, a project proposed for Hawaii that was virtually identical in design to the proposed MOSCAMED and CAPMED programs was halted on environmental grounds.

There are also indications that MOSCAMED will hurt the economy of Guatemala. One of the justifications given by USDA for the project is that it will allow increased exports of agricultural commodities such as tomatoes, peppers, and eggplants to the United States, which now has a quarantine in effect because of the medfly risk. The benefits from these increased exports are entirely speculative, while the risks to existing export-earning agricultural crops are quite concrete.

There is strong evidence that the project will adversely affect coffee, which accounts for one-third of the Guatemala's export revenues. Coffee growers have been the most vocal group opposed to the program to date because of the outbreaks of other pests that have occurred after spraying. Appended to this statement as Attachment "A" is an advertisement from the Guatemala City newspaper Prensa Libre of June 17, 1987 in which the Asociacion de Caficultores Unidos -- one of a large number of organizations of coffee growers protesting the project -- described MOSCAMED as "an immediate act of destruction for the health, the economy, the ecology, and the production of our country." There is also evidence that yields of cardamom will be reduced when insect pollinators crucial to this important commodity perish after spraying.

The environmental risks of the MOSCAMED project, which are undoubtedly substantial, are the subject of an environmental assessment currently being prepared by the A.I.D. pursuant to a Congressional mandate. That study, which is due to be completed by June 5, will also address the effects of the project on the economy of Guatemala and the cost effectiveness of the program. The results of the MOSCAMED study will provide a strong signal as to the wisdom of proceeding with the larger CAPMED project.

Because of grave concern about the environmental risks of these projects, the Appropriations Committees of both houses of the Congress suspended these projects last year pending completion of the A.I.D. study. NRDC, the Sierra Club, and NWF strongly believe that it would be premature for the Congress to permit these undertakings to go forward until their proponents -- USDA, A.I.D., and U.S. growers -- can demonstrate that they satisfy each of three tests: (1) that they will have no adverse impacts on the environment of the countries concerned; (2) that they will benefit the economies of the region; and (3) that they are cost-effective from the point of view of benefits within the United States. The information already available about these projects suggests that they do not satisfy any of these tests. We encourage this Subcommittee to inform A.I.D. that it wishes to receive a copy of the MOSCAMED environmental assessment when it becomes available and to hold a special hearing on this unwise and wasteful project.

These projects are indicative of the kind of callousness to environmental concerns that often afflicts United States policy toward the region. While the United States has definite strategic and economic interests in Central America, there is no reason why projects such as these that are unnecessarily harmful should be undertaken. MOSCAMED and CAPMED may also be only the tip of an iceberg of pesticide abuse being sponsored by the United States in the region. As a result of our work on the medfly projects, NRDC has received an avalanche of additional protests about the lack of controls over U.S.-sponsored drug eradication in the area using the herbicide glyphosate and, according to some reports, 2,4-D, 2,4,5-T, and paraquat. The organizations I represent today strongly encourage this Subcommittee not only to ensure the termination of MOSCAMED and CAPMED, but also strictly to monitor the use of toxic pesticides in U.S.-financed undertakings in the region.

II. WORLD BANK AND THE IDB[1]

Over the past several years, profound environmental and social difficulties associated with a number of water projects financed by the World Bank and the Inter-American Development Bank (IDB) in Central America have been documented. The IDB, for example, has invested over $2 billion in hydroelectric projects in the region, including the El Cajon hydroelectric dam in

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[1] The information in this section has been supplied by the National Wildlife Federation.

Honduras and the Chixoy dam in Guatemala, without adequate watershed management measures. As a result, these dams are silting up at rates higher than were expected, and millions of dollars of future economic benefits from both projects have been lost.

The environmental quality of projects financed by the World Bank and the IDB is now an issue of great public concern in Central America, especially in countries like Guatemala where electricity rate hikes of 70% that will have profound and immediate impacts on local people have been proposed. For example, union representatives of INAFOR, the Guatemalan forestry agency, recently took the highly unusual step of publicizing their concerns about the Chixoy dam, citing evidence that its useful life has been reduced by close to 20 years due to a lack of adequate watershed management. The union representatives are asking for increased investment in reforestation projects and a closer scrutiny over how funds are spent by INAFOR executives.

The energy sector is not the only one in which projects financed by the multilateral banks have received justified criticism. For years, the IDB has lent money to the government of Panama and its bank for agriculture and livestock, the Banco de Desarollo Agropecuario (BDA), for livestock production projects. Livestock production is one of the primary causes of deforestation in Panama, and valuable forests have been lost because of IDB loans. As BBC producer Brian Leith discovered during the filming of the series "Only One Earth," IDB funds have contributed to the deforestation of the watershed surrounding the Panama Canal, increasing siltation in this critical waterway. Leith documented that at least one cattle rancher was operating in this watershed with capital provided by the IDB via a Panamanian national development bank.

The IDB has taken some steps to reduce the worst impacts of these projects. In the cases of Chixoy and El Cajon, the IDB is now financing pre-feasibility studies for watershed management projects. With respect to livestock development in Panama, the IDB has worked hard to strengthen the environmental provisions of future loans, which will also apply to funds remaining from previous loans. The new president of the IDB has committed himself and the Bank to promoting sustainable development in borrowing countries.

Nevertheless, even a cursory analysis of projects approved by both the IDB and the World Bank in 1987 indicates that these institutions still do not invest adequately in projects that benefit the natural resource base of Central America. There has been no significant change in the mix of projects financed despite recent legislation and U.S. Treasury Department recommendations to fund an increased proportion of environmentally beneficial projects that are designed to restore, preserve, and enhance the resource base.

In 1987, the World Bank approved five loans in Central America, only one of which, a $23 million loan to Guatemala to increase the supply of potable water to the capital city, could be considered environmentally beneficial. The bulk of the World Bank's lending -- $126 million out of a total of $160 million -- still went to export-oriented agricultural projects. To its credit, during the past year the IDB financed a $166 million potable water project to provide safe drinking water for the capital of El Salvador, as well as a $12.2 million reforestation pilot-project in Costa Rica. However, none of the other projects approved by the IDB in 1987 were designed to address the serious natural resource problems of the area.

More important than what these Banks have done in the past is what they will do in the future. Unfortunately, both institutions seem to be planning for more of the same. A list of projects proposed by the World Bank, for example, shows a far greater emphasis on road construction and agricultural exports than on reforestation or rehabilitation of degraded croplands. The IDB has apparently embarked on feasibility studies for watershed management associated with previously approved hydroelectric dams, but it is also seriously considering investments in new dams where watershed management measures are not in place.

Deforestation, the loss of valuable croplands, and the depletion of biodiversity are immense problems that plague Central America. Both the World Bank and the IDB could play a leadership role in reversing these trends. Natural resource degradation is also one of the principal constraints on future economic development in the region. The organizations I represent today strongly recommend that these institutions allocate substantially increased funds for community-based forestry projects, for agricultural production based on sustainable strategies, for assisting and strengthening local governmental agencies, and for other environmentally beneficial projects as they are identified.

Both the World Bank and the IDB have lagged in meeting the standards for reform of the project cycle set out in three years of appropriations legislation and now codified in permanent authorizing legislation. Local conservation organizations and the affected public generally should be active participants in the selection, design, implementation, and monitoring of development projects to assure that development bank-financed projects will in fact help their intended beneficiaries. These institutions should alter their policy of strict secrecy so that key bank documents describing the design and anticipated effects of proposed projects are made available to the public in borrowing countries. The banks should undertake detailed environmental assessments, including a thorough examination of alternatives, for all projects that may have a significant impact on the environment. In a recent letter to several of the organizations I represent today, new IDB president Enrique Iglesias stated that "development institutions are clearly accountable to the people who will be affected by development projects". We hope that he will deliver on that promise in practice.

The banks must also increase their capacity for dealing with the environmental consequences of the projects they finance through increasing their staff trained in environmental and social sciences. The World Bank has made a good start by assigning a total of about 47 professionals to a central Environment Department and satellite environmental offices in each of the Bank's four regional technical department. However, it is already apparent that even these staff resources are insufficient to accomplish many urgent tasks. The IDB has even further to go.

The World Bank and the IDB should do more to strengthen the capability of borrowing countries to manage natural resources effectively. There is an urgent necessity to strengthen governmental agencies that have the responsibility for setting environmental policies and agencies, such as forestry offices, that have a direct responsibility for implementing natural resource projects. The Banks should also help build institutional capacities for dealing with environmental issues in other agencies, such as those responsible for building roads, hydroelectric dams, and other heavy infrastructure projects. Likewise, the environmental capabilities of local financial intermediaries that receive loans for agricultural and livestock production should be strengthened.

NRDC, the Sierra Club, NWF, EPI, and EPOCA urge this Subcommittee to demand concrete progress from the World Bank and the IDB in each of these areas. The Appropriations Committees of both houses of the Congress have enacted legislation for the past three years requiring these reforms, and last December those requirements were codified in permanent authorizing legislation. Progress by the institutions themselves has been slow. We urge this Subcommittee to demand from the World Bank and the IDB, via the Administration, precise statements of which elements of the reform agenda set out in authorizing and appropriations legislation for the past three years will be implemented by those institutions within a year of today's date.

III. MILITARY CONFLICT AND "PEACE THROUGH PARKS"[2]

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[2] The information in this section has been supplied by the Environmental Policy Institute and the National Wildlife Federation.

The relationship between the military conflict in Central America and environmental degradation is multifaceted and complex. There is an obvious connection between actual military activity and environmental harm. Aerial bombings, construction of military roads and fortifications, and the reported use of defoliants have ravaged the environments of Nicaragua, Honduras, El Salvador, and Guatemala.

Military conflict also has indirect but profound effects on the environment. Governments are forced to reduce investments in environmentally beneficial activities, such as reforestation, and to redirect resources to military activities. Foreign donors are reluctant to invest in areas that are politically unstable.

The most tragic impact of military conflict is always seen in human terms. A particularly chilling example of this is the case of Ben Linder, a volunteer from the United States who was involved in the construction of community-based hydroelectric projects in Nicaragua. Linder was working on one of these projects in an area of Nicaragua about 30 miles from the Honduran border when he and two Nicaraguan colleagues were assassinated by contra forces on April 28, 1987. This human tragedy is a further example of how military conflict undermines efforts to promote sustainable development in Central America.

While a variety of points of view have been advanced as to the cause of the military conflict in Central America, there is little disagreement over its impact on the environment. Resolution of political and military conflict, and an awareness of the role of environmental issues in promoting regional cooperation, are necessary steps toward the restoration of the natural resource base of this region.

International parks and nature reserves can help promote peace and environmentally sound development in Central America by fostering cooperative efforts between neighboring nations. These zones could become centers of internationally significant research and economic development through tourism and rational resource management.

The idea of creating international reserves in the region emerged at the First Central American Meeting on the Conservation of Natural and Cultural Resources in San Jose, Costa Rica in 1974. In the years following this meeting, a number of Central American countries began to dedicate some of their scarce economic resources to protecting shared natural resources and promoting sustainable development in border regions. The La Amistad International Park on the Costa Rica-Panama border, and El Trifinio, a tri-national park on the borders of Guatemala, El Salvador and Honduras have already been established as a result of these efforts.

When the five Central American Presidents signed the Esquipulas II peace accords in August 1987, they inspired hope among Central American environmentalists as well as concerned scientists and citizens around the world that the military activities currently ravaging the region's environment would come to an end. The Arias peace plan also breathed new life into the movement to create international parks in the region, which had been languishing as a result of the regional conflict. Within months, all five governments demonstrated their political will to support peace through parks.

Inspired by the peace plan, the Vice-Presidents of Guatemala, El Salvador and Honduras signed a joint agreement on November 24, 1987, declaring their common border area, known as El Trifinio, a biosphere reserve. On February 5, 1988, Costa Rica's Minister of Natural Resources, Alvaro Umana, and the Director of IRENA (Nicaragua's environmental agency), Julio Castillo, signed a letter of intent to create an international biosphere reserve on their border.

Costa Rica's and Nicaragua's proposed International System of Protected Areas for Peace (SI-A-PAZ) would conserve 6,000 square kilometers of pristine tropical rainforests and wetlands in its core area alone. SI-A-PAZ (which translates as "Yes to Peace") is an integrated development project which aims to protect precious natural resources on both sides of the border while promoting economic development in surrounding zones, thus raising the standard of living of people in the zone and contributing to peace in the region. As Costa Rica's Minister Umana recently told a press conference, SI-A-PAZ "is very closely allied to the whole peace process, to the whole development process that we're trying to start in Central America."

This Subcommittee can play a crucial role in making the Peace Through Parks concept a reality. The organizations I represent urge the Subcommittee to send a clear signal to the State Department to encourage and support additional efforts to create peace parks as an apolitical, environmentally beneficial undertaking. The State Department recently impeded attempts on behalf of Lorenzo Cardenal, Nicaragua's Director of National Parks, to obtain a visa to visit the United States to promote peace parks. This Subcommittee should urge the Administration to remove impediments of this sort to further cooperation under the "Peace Through Parks" program.

Mr. Chairman, although Costa Rica and Nicaragua have committed themselves to the creation of a peace park on their common border, there are still substantial obstacles to making that commitment a reality. We urge you and the Subcommittee immediately to send a letter to the heads of states of both countries congratulating them on this new and promising initiative. That letter should also pledge the support of the Subcommittee for the creation in fact of the SI-A-PAZ System and for further similar efforts in the region.

IV. CONCLUSION

Mr. Chairman, I understand that a new international commission, which you helped organize, will issue recommendations for the rehabilitation and future development of Central America. I hope that the issues that I have raised in my testimony will be carefully considered in any economic development effort, as well as by the International Commission on Central American Recovery and Development. I am convinced that all the testimony presented here today will demonstrate the need for consideration of natural resource issues in considering the needs the region. In addition to the recommendations made in the preceding portions of this statement, I believe that there are several overarching themes that should be borne in mind when dealing with these difficult issues.

First, the debt crisis which affects large countries such as Mexico and Brazil also has an important effect in Central America. Costa Rica, Panama, and Nicaragua all have higher per capita foreign debts than Mexico and Brazil. The consequences of this crushing burden in Central America obvious. Natural resources are rapidly depleted to obtain foreign exchange, public sector agencies designed to address natural resource needs are forced to cut their budgets, and long-term prospects for economic growth are compromised. Debt relief for Central America is a necessary prerequisite for future economic development and a restoration of the natural resource base.

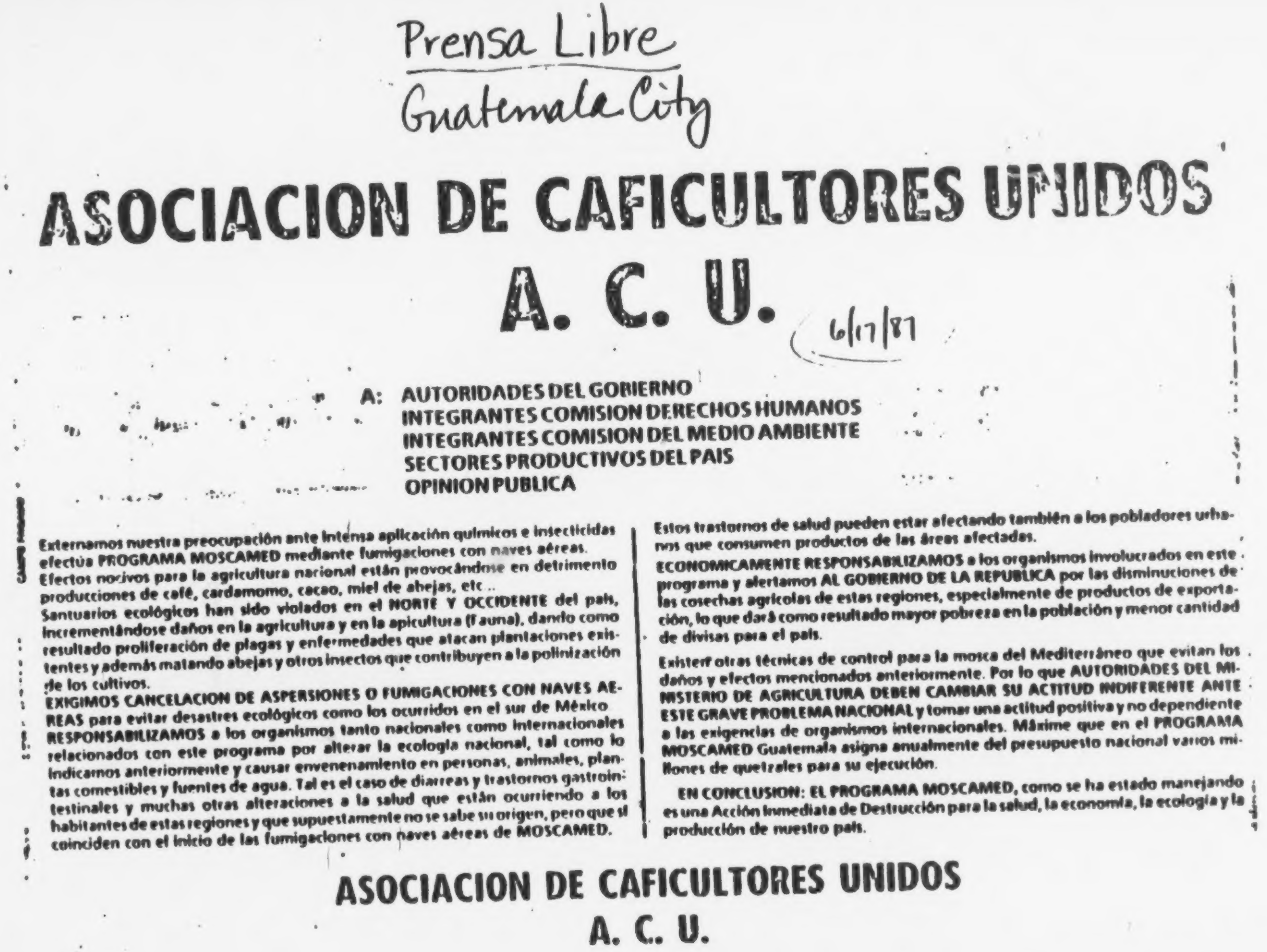
Second, natural resource issues in Central America should be considered on a regional basis. Most of the problems that I have discussed cross national boundaries and are common to many if not all the countries in this region. Likewise, a regional approach will facilitate solutions. The Commission you helped organize is one example of this. The mere scheduling of this hearing suggests that a regional response to these problems is of interest to the Congress. It is our hope that bilateral and multilateral aid donors will also support a regional approach to their work in Central America.

Finally, it is important to recognize the important role local conservation organizations have played and should continue to play in advancing the cause of sustainable development within their countries. Central American conservation organizations have undertaken education projects in rural areas and cities, they have helped establish national park systems, and they have actively encouraged their governments to subject development projects to stricter environmental standards.

One of the most exciting recent achievements of the regional environmental movement is the creation of REDES, a network of conservation groups in Central America. This network, which was formed during the Central American Environmental Action Conference held in Managua, Nicaragua in May 1987, demonstrates a commitment to a regional approach by NGOs for dealing with natural resource issues. In addition to its work on developing peace parks, REDES will also be involved in environmental education and in the current effort to seek environmental reform within the multilateral development banks. Ultimately, REDES and its member organizations can help encourage democratization of the region by opening up governmental decisionmaking to public scrutiny.

Mr. Chairman, this concludes my prepared statement. I will be happy to answer any questions you may have.

ATTACHMENT A



Prensa Libre
Guatemala City

ASOCIACION DE CAFICULTORES UNIDOS

A. C. U.

6/17/87

A: **AUTORIDADES DEL GOBIERNO**
INTEGRANTES COMISION DERECHOS HUMANOS
INTEGRANTES COMISION DEL MEDIO AMBIENTE
SECTORES PRODUCTIVOS DEL PAIS
OPINION PUBLICA

Externamos nuestra preocupación ante intensa aplicación químicos e insecticidas
efectúa **PROGRAMA MOSCAMED** mediante fumigaciones con naves aéreas.
Efectos nocivos para la agricultura nacional están provocándose en detrimento
producciones de café, cardamomo, cacao, miel de abejas, etc...
Santuarios ecológicos han sido violados en el **NORTE Y OCCIDENTE** del país,
incrementándose daños en la agricultura y en la apicultura (Fauna), dando como
resultado proliferación de plagas y enfermedades que atacan plantaciones exis-
tentes y además matando abejas y otros insectos que contribuyen a la polinización
de los cultivos.

EXIGIMOS CANCELACION DE ASPERSIONES O FUMIGACIONES CON NAVES AE-
REAS para evitar desastres ecológicos como los ocurridos en el sur de México
RESPONSABILIZAMOS a los organismos tanto nacionales como internacionales
relacionados con este programa por alterar la ecología nacional, tal como lo
indicamos anteriormente y causar envenenamiento en personas, animales, plan-
tas comestibles y fuentes de agua. Tal es el caso de diarreas y trastornos gastroin-
testinales y muchas otras alteraciones a la salud que están ocurriendo a los
habitantes de estas regiones y que supuestamente no se sabe su origen, pero que si
coinciden con el inicio de las fumigaciones con naves aéreas de MOSCAMED.

Estos trastornos de salud pueden estar afectando también a los pobladores urba-
nos que consumen productos de las áreas afectadas.

ECONOMICAMENTE RESPONSABILIZAMOS a los organismos involucrados en este
programa y alertamos **AL GOBIERNO DE LA REPUBLICA** por las disminuciones de
las cosechas agrícolas de estas regiones, especialmente de productos de exporta-
ción, lo que dará como resultado mayor pobreza en la población y menor cantidad
de divisas para el país.

Existen otras técnicas de control para la mosca del Mediterráneo que evitan los
daños y efectos mencionados anteriormente. Por lo que **AUTORIDADES DEL MI-**
NISTERIO DE AGRICULTURA DEBEN CAMBIAR SU ACTITUD INDIFERENTE ANTE
ESTE GRAVE PROBLEMA NACIONAL y tomar una actitud positiva y no dependiente
a las exigencias de organismos internacionales. Máxime que en el **PROGRAMA**
MOSCAMED Guatemala asigna anualmente del presupuesto nacional varios mi-
llones de quetzales para su ejecución.

EN CONCLUSION: EL PROGRAMA MOSCAMED, como se ha estado manejando
es una Acción Inmediata de Destrucción para la salud, la economía, la ecología y la
producción de nuestro país.

ASOCIACION DE CAFICULTORES UNIDOS
A. C. U.

TRANSLATION OF ATTACHMENT A

ASSOCIATION OF UNITED COFFEE GROWERS

TO: GOVERNMENT AUTHORITIES
INTEGRAL HUMAN RIGHTS COMMISSION
INTEGRAL COMMISSION ON THE ENVIRONMENT
PRODUCTIVE SECTORS OF THE COUNTRY
PUBLIC OPINION

We are sharing our concern against the intense application of chemicals and insecticides which the MOSCAMED PROGRAM is effecting through spraying carried out by aircraft. Noxious effects to the nation's agriculture are causing lower production of coffee, cardamon, cocoa, bee's honey, etc...

Ecological sanctuaries have been violated in the NORTH and WEST of the country, thus increasing harm to agriculture and in apiculture (Fauna), such harm being the result of a proliferation of plagues and diseases that attack existing plantations and furthermore killing bees and other insects that contribute to the pollinization of cultivated crops.

WE ARE SEEKING CANCELLATION OF THE DISPERSION AND SPRAYING BY AIRCRAFT in order to avoid ecological disasters such as those that have occurred in southern Mexico. WE ARE ASSIGNING RESPONSIBILITY to the national and international agencies involved in this program for altering the national ecology, in the manner in which we indicated earlier, and for causing poisoning of people, animals, food crops and sources of water. This is evidenced by the diarrhea and gastrointestinal disorders, and other health changes that are occurring to the habitants of these regions and whose origin is supposedly unknown, though they happen to coincide with the initiation of spraying with aircraft by MOSCAMED. These health disorders can also affect the urban populations that consume products from the affected areas.

WE ARE ASSIGNING ECONOMIC RESPONSIBILITY to the organizations involved in this program and we are alerting the GOVERNMENT OF THE REPUBLIC to the diminishment of the agricultural crops of these regions, especially of exportable products, all of which will result in a greater impoverishment of the population and a reduced quantity of foreign exchange for the country.

Other techniques of controlling the Mediterranean fruit fly exist that avoid the harm and the effects mentioned above. Because of this, AUTHORITIES IN THE AGRICULTURE MINISTRY SHOULD CHANGE THEIR PRESENT INDIFFERENT ATTITUDE TO THIS SERIOUS NATIONAL PROBLEM and take a positive attitude and not remain dependent on the needs of international agencies. The principle reason for this change is that THE MOSCAMED PROGRAM in Guatemala is annually assigned millions of quetzales from the national budget for its execution.

IN CONCLUSION: THE MOSCAMED PROGRAM as it has been managed is an Immediate Act of Destruction for the health, the economy, the ecology, and the production of our country.

Statement Submitted by James R. Barborak

University for Peace, Costa Rica

Statement of James R. Barborak, Before the Hearing on Sustainable Development in Central America, Senate Foreign Relations Subcommittee on International Economic Policy, Trade, Oceans, and the Environment, April 27, 1988

Every year, just about this time, tens of milions of undocumented aliens cross our southern border. Travelling at night, singly and in groups, they rapidly fan out coast to coast and from Mexico on into Canada. Unlike most aliens, however, these seasonal visitors from the tropics are welcomed with open arms in the United States. Federal, state, and local governments and private groups look out for their welfare. We treat them like prodigal sons and spend millions of dollars to ensure that they have sufficient food and shelter and are protected from those who would harm them or adversely affect their return journey south each fall.

Unfortunately, our generous habits at home do not always extend beyond our own borders, and the situation is made worse by the fact that countries to the south, plagued by a host of problems they feel to be of greater importance to their citizenry, usually provide little support to the returning travellers each fall. Thus, once our seasonal guests return to their winter abodes in southern Mexico, the Caribbean islands, and particularly Central America, they are subjected to threats which negate much of the benefits derived from our efforts to pamper them while they are in the United States.

By now you probably realize that I am talking not about migrant workers but rather about the over 225 species of migratory birds which are the "shared property" of our nation and the countries to the south. Three of the four major flyways for migratory birds in the Western Hemisphere converge in Central America. Nearly one in three species of birds of the continental U.S. spend at least some part of the year in Central America, and most of the population of over 50 species spends the majority of the year there and only a few months in the U.S. each summer.

Even if one is not a fervent bird watcher it is easy to comprehend that our own federal and state conservation programs to buy and manage habitat for migratory birds will not have positive effects if the birds are under siege in Central America. Indeed, this is the case. While we buy more and more habitat at home for these birds, the past three decades have witnessed the destruction of over two thirds of Central America's forests, and about three percent of remaining forests are still lost each year. These rates of forest loss closely correlate with rates of decline in a number of bird species which rely on mature forest stands in Central America for much of the year.

The case of migratory birds ofers a telling example of how closely tied our own conservation efforts at home are with those in Central America. However, the success of conservation programs in Central America affects much more than the future of several hundred bird species--more importantly, the chances for a lasting and just peace in Central America, an improved standard of living for all its inhabitants, and ultimately our own national security are also dependent on the success of natural resource management programs in Central America.

Many observers believe that this theme was inadequately addressed in the report of the Bipartisan Commission on Central America. The seven countries of that region cover just four-tenths of one percent of the earth's land surface, but are home to over eight percent of all plants species, nearly fifteen percent of all birds and ten percent of mammals, all in an area three-fourths the size of Texas. Maintaining this diversity is extremely important to global progress in agriculture, since genetic improvement of many important crops which originated in Central America depends on access to their primitive relatives to continually improve yields, characteristics and pest resistance. The same is true with regards to the search for new plant-derived drugs and substitutes for chemicals derived from non-renewable resources such as oil. For example, large numbers of Central American plants are now being screened in the U.S. as part of a federally funded search for cures for AIDS.

The conservation of Central American wildlands and the species they contain is thus clearly of vital importance to our own long-term food security and progress in medicine and chemistry. It is even more important to the improvement of the standard of living of the 30 million Central Americans. Maintenance of forest cover in steep-sloped uplands with poor soils and high precipitation is necessary to prevent siltation of downstream potable water, irrigation and hydroelectric projects. It also prevents degradation of coastal fisheries and flood damage to urban areas and croplands. Ensuring sustained harvests of wood products is vital to the survival of the housing and timber industries in the region which are principal sources of foreign exchange for several countries, particularly Honduras. Nature based tourism is now a leading source of dollar revenue for Costa Rica and Belize and destruction of forests will quickly reduce the attractiveness of these countries as tourist destinations. Soil erosion will likewise damage offshore reefs, which will reduce fisheries yields and discourage tourism as well. Finally, a large percentage of the region's population depends on wildlands resources for food, medicines, construction materials and other basic necessities. The survival of the region's remaining indigenous cultures is directly linked to the fate of the forests. All told, natural resource-related enterprises are the most important source of employment and largest contributor to the GNP of the countries of Central America.

The rapidly growing human population, skewed land distribution, unsustainable harvest methods, lack of intensive land management, abuse of pesticides, and similar problems have combined to rapidly rob Central America of much of its precious natural capital. Through its bilateral aid programs and its support of multilateral banks and U.N. projects, the U.S. government has played an important role in trying to stem the tide of environmental degradation in the region. I would like to give one example of a model sustainable resource management project which has benefitted in many ways from U.S. assistance.

The Kuna Indians inhabit much of the Caribbean slope of Panama from east of the Canal to the Colombian border. Until recently their reserve was very isolated but in the 1970's tribal leaders sought help from USAID to build an access road to their reservation to improve access to markets for their agricultural products. Building roads into relatively uninhabited rainforest areas anywhere in Central America invariably leads to invasions by landless peasants, and this happened in the Kuna case; soon after road construction began non-Indian peasants totally denuded all forests along the road path, and rapidly replaced them with extremely eroded pastures.

Fortunately in this case, both the Kuna and USAID officials realized that steps had to be taken to prevent invasion of Indian lands, which would lead to destruction of the forests which the Kunas used for harvesting many useful products. Forest cutting would have also degraded the streams the Kunas used for drinking water and would have caused sediment to build up on offshore reefs on which the Kuna fished for lobster and finfish.

The Panama-based Smithsonian Tropical Research Institute helped convince the Kuna to establish an Indian-managed protected area in the highlands of the Kuna reservation. They and other advisers convinced the Kuna that through revenue derived from promoting scientific research and nature-based tourism, the Kuna could derive income from the forest while maintaining traditional uses of it. Smithsonian scientists helped the Kuna document the high biological diversity of the area and its importance for science. The U.S. AID mission in Panama provided funding to prepare management plans for the area. The USAID regional office provided several scholarships for training of Kuna in agroforestry and wildlands management at the Tropical Agricultural Research and Training Institute (CATIE) in Costa Rica. The Interamerican Foundation provided considerable support for staff training, environmental education and construction of infrastructure in the reserve. The Kuna benefitted from membership in a coalition of Panamanian conservation groups also supported by AID. Several Kuna leaders participated in training visits to U.S. protected areas with the support of the U.S. National Park Service. The World Wildlife Fund-U.S. provided additional support with funds obtained through an AID matching grant program for U.S. based conservation NGO's.

The Kuna conservation project has been hailed by many as one of the best examples of indigenous resource management in Latin America. However, the future of this project and several other existing and planned conservation initiatives in Panama is now in doubt. AID funding to Panama was recently cut off for political reasons. The same political turmoil has reduced Kuna revenues derived from tourism and researchers. In spite of the fact that the project is apolitical and has nothing to do with the Panamanian government, it is being adversely affected by deteriorating relations between the U.S. and Panama.

A lot can be learned from the Kuna case study and a large number of other conservation and development projects carried out directly or in part with U.S. assistance over the years. Time and space do not allow for a complete review of these cases, but I would like to provide ten concrete suggestions on how Congress can contribute to reducing environmental degradation in Central America and promote sustainable development in the region.

1) Congress should convene a blue ribbon commission to review how environmental degradation is adversely affecting chances for peace and sustainable development in Central America and reducing the biological diversity of the region. This commission should devise a specific plan of action by the U.S. government to help mitigate the negative environmental impacts caused by past U.S. economic and particularly military assistance and help reverse current trends of resource degradation. To be successful any such effort must allow for participation of all seven nations in the Central American region. The commission should include members of Congress and their staffs, as well as representatives from U.S. universities and environmental groups who are knowledgeable about the region.

Among those actions which based on my experience should form part of U.S. government assistance to improve environmental conditions in Central America which should be considered by such a commission are the following:

2) Unless the majority of the rurral inhabitants of Central America obtain secure individual or collective land title in coming years, no amount of aid from the U.S. or any other source will prevent further internal strife or repeats of the 1969 "Soccer War" between Honduras and El Salvador which was a direct result of land degradation and gross inequalities in land tenure in the latter country. Without clear land title, small farmers cannot obtain credit, are shut off from extension services, and have no incentive to adopt sustainable farming systems, invest in tree cropping or reduce soil erosion. They are also likely to invade parcels reforested by government agencies, timber companies and large farmers, creating disincentives to reforestation by anyone that are worsened by low land taxes and loan policies which favor extensive uses such as cattle grazing even where inappropriate. Greatly increased U.S. and MDB support to land use planning, the reform of land taxes and loan subsidies which favor poor land use, land titling and true agrarian reform where politically feasible are in order. Where support is given to establish or manage protected areas, it should be combined with support to land titling, extension, marketing, and credit programs for inhabitants of regions around reserves. The "biosphere reserve concept" should be applied wherever possible. This involves establishment of inviolate core

reserves in areas of high species diversity and ecological representativeness. Unlike traditional national parks, however, such reserves permit sustainable forestry and agriculture in buffer zones surrounding the core zones where multiple community development activities are carried out to improve local standards of living.

One specific group of rural inhabitants which deserves special attention are the hundreds of thousands of political, economic, and environmental refugees in Central America. In Belize, they are responsible for great increases in deforestation rates due to slash and burn agriculture and cultivation of marijuana; in Honduras they have contributed to the illegal trade in parrots and macaws; in northern Costa Rica they are rapidly hastening the demise of the last unlogged commercial forests in that country.

3) Efforts to establish and adequately manage border peace parks throughout Central America should receive special support. Most of the largest pristine wildlands in Central America are located along remote international borders. Since 1974 the countries of the region have been working toward establishing a system of border peace parks in such areas. Already such a reserve exists along the Colombian-Panamanian Darien border, and a similar border park exists along the Costa Rica-Panama border, though the Panamanians lag behind the Costa Ricans in managing their part of the reserve. A similar such peace reserve is now being planned along the Nicaragua-Costa Rica border, and another potential park is found in the region's largest wilderness, along the Nicaragua-Honduras border in an area of intense contra-Sandinista combat until recently. The governments of Honduras, El Salvador and Guatemala recently established a trinational reserve along the mountain which forms their joint border, and there is potential for similar reserves where Belize, Mexico and Guatemala meet, and in the mangrove forests which stretch from El Salvador through Honduras to Nicaragua on the Pacific coast. A regional peace park project would go a long way toward demilitarizing large parts of the joint borders of these regions while protecting a large part of the biological diversity of Central America and the tribal homelands of Miskito and other Indian groups.

U.S. support to such efforts is especially timely since our military aid to Honduras, El Salvador and the Nicaraguan contras is directly responsible for considerable environmental degradation in these border areas. Contras have kidnapped Nicaraguan park staff and set fire to reforestation projects. Joint U.S.-Honduras military manuevers have inadvertedly caused forest fires which have had dramatic effects on Honduran timber reserves. The scorched earth campaigns of the Salvadoran and Guatemalan armies have also led to widespread forest degradation, and increased the previously mentioned refugee problem. An end result is, of course, greater illegal immigration to the U.S.

4) Investments in human resource development and technical

assistance deserve far greater support. While as a result of the Kissinger Commission the number of scholarships for Central Americans to study in the U.S. has increased, much more support is needed, particularly in the environmental field. While some such training, particularly at the post-graduate level, should be carried out in the U.S., it is far more important to improve the quality of the local and regional universities and training institutes in Central America with environmental programs. These include the natural resource training programs at CATIE and the National University in Costa Rica and the Forest Techician School at Siguatepeque, Honduras. Particularly important would be sponsorship of a regional ranger training academy.

Also important would be to increase funding available to the U.S. National Park Service, Fish and Wildlife Service, and Forest Service for training and technical assistance to Central American conservation efforts. Some such support is already provided under the terms of the Western Hemisphere Convention on Nature Conservation, but much more is needed. Greater U.S. contributions to the World Heritage Convention, possibly particularly designated for activities in Central America, is another possibility. The National Science Foundation should be encouraged to provide greater support for basic biological inventory in Central America and elsewhere in the tropics. Congressional authorizations for the Interamerican Foundation could also be increased. IAF provides very effective community-level support to conservation projects without much of the bureaucracy involved in other programs.

5) Projects supported by U.S. AID's Regional Office for Central America and Panama are now not truly regional in scope, since they exclude for the most part activities in Panama and Nicaragua for political reasons and Belize simply because it has been handled by AID's Caribbean office. Most conservation projects, such as current regional watershed management, multiple-use tree production, and integrated pest management initiatives, are clearly apolitical and it is not in the long term interests of the U.S. or the region to totally exclude any country from participation in such projects. For example, massive pesticide abuse in Nicaragua can affect fisheries as far away as El Salvador. Poor land use in Panama could eventually lead to "environmental refugees" invading Costa Rica if that country's conservation efforts markedly improve the standard of living of its rural poor.

6) USAID should increase its cooperative projects with U.S. PVO's in Central America and play a decreasing role in direct supervision and implementation of projects. USAID has already provided considerable funding to a number of projects initiated by U.S. PVO's such as WWF-US and the Nature Conservancy in Central America. Such agencies are usually more effective project managers than is USAID, particularly for small projects, and the joint public-private ventures help harness more funds to deal with pressing environmental problems in Central America.

7) Better coordination is needed among major bilateral and multilateral donors involved in conservation and development projects in Central America. I was recently pleased to hear that USAID officials had met with their Canadian counterparts to eliminate duplication of efforts and ensure better coordination in their environmental projects in the Caribbean basin. More such coordination and joint financing is warranted with aid agencies such as those from the Nordic countries, Japan, the U.K., West Germany, Switzerland and the EEC, as well as with the multilateral banks and U.N. agencies.

8) The MDB's, under great pressure from the governments and citizen activists of the U.S., Canada, and some European countries, have taken important steps to improve consideration of the environment in their aid projects. However, just designing new projects better is not enough. Many previously financed projects inadequately addressed environmental issues. Remedial action is required to ensure sustainability of these projects and to correct past mistakes. Examples would include the near total lack of consideration of the need for watershed and wildlands management in the El Chixoy and El Cajon hydropower projects in Guatemala and Honduras.

9) Longer project lifetimes are needed to adequately address long term environmental problems. The short three to five year life spans of traditional aid projects might be suited to building infrastructure but certainly are not appropriate for planting forests or developing protected areas systems. This does not mean that expenditures must necessarily go up dramatically. In spite of the size of the problems they face, many government conservation agencies and PVO's have a limited ability to absorb large infusions of outside support efficiently. This often leads to unnecessary expenditures and low cost effectiveness in USAID and MDB projects where project managers place greater emphasis on meeting spending goals than on really doing something to resolve pressing resource management problems. Project lifetimes should be extended, and spending levels and physical goals should be more flexible. Throwing money at a problem can do more harm than good. Also, all projects should include specific components to ensure their financial sustainability once aid funding is over; far too many projects which appear to be successful collapse the moment the aid carpet is pulled out from under the recipient agency.

10) Much of the good derived from specific projects by USAID and other bilateral and multilateral donors is offset by the macroeconomic policies imposed by these same donors, and particularly the International Monetary Fund, on aid recipient countries. For example, Costa Rica's National Park System is often considered a model for developing countries. USAID and many other donors have supported specific parks projects in Costa Rica, contributing to a more than doubling in the size of the park system in the past decade. During that same decade, however, the government reduced the staff of the park service by 20 percent, almost totally eliminated its regular operating

budget, and nearly axed its proprietary fund, all under the terms of "economic restructuring agreements" signed with donor agencies in return for continued infusions of hard currency to Costa Rica's Central Bank. Conservation agencies are often among those hardest hit by such restructuring programs, and USAID and other U.S. supported donors should more closely consider how such programs affect the chances for sustainable development in affected countries.

TESTIMONY OF
SHELDON ANNIS, VISITING FELLOW[1]
OVERSEAS DEVELOPMENT COUNCIL
ON DEBT AND THE ENVIRONMENT IN CENTRAL AMERICA

FOR
U.S. SENATE COMMITTEE ON FOREIGN RELATIONS
SUBCOMMITTEE ON INTERNATIONAL ECONOMIC POLICY,
TRADE, OCEANS, AND THE ENVIRONMENT
SENATOR TERRY SANFORD, CHAIRMAN

APRIL 27, 1988

Mr. Chairman, I am pleased to be able to speak with you today on debt and the environment in Central America. I am especially pleased because these two topics -- debt and the environment -- are usually discussed separately, when in fact they are inextricably related.

Today I would like to explore that relationship. I will argue that Central America's economic wealth is related to environmental wealth; its economic poverty is related to environmental poverty; its economic debt is related to its environmental debt; and most importantly, the solutions to its economic problems are related to the solutions to its environmental problems.

Allow me to elaborate upon this idea; and then, in the few remaining minutes, to touch briefly upon the notion of debt-for-nature swaps.

I am sure that I need not belabor here the facts of economic debt in Central America. Twenty-three million people -- most of whom are poor -- owe about $15 billion to external creditors. All of you are keenly aware of the origins, country-by-country variation, social costs, and millstone weight of this debt. It takes no great imagination to see that a compounding debt burden could easily undo the fragile political progress that has recently been achieved.

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[1] These views are those of the author and should not be attributed to the Overseas Development Council.

In a quieter way, it is also obvious that economic debt is bad for the environment. Take, for example, public sector support for environmental programs. Never a high priority in the first place, public sector support for environmental programs has all but dried up. Most countries today can't meet the recurring costs of existing programs, much less launch new ones. With pervasive budget cuts, only core salaries are left. Virtually all program funds have to come from grants, new external borrowing, or special allocations. That means that the forestry program and renowned national park system in Costa Rica does not have direct state support to maintain facilities, keep out squatters, conduct research, extend innovative pilot programs, train personnel, promote environmental education, purchase new lands, or adequately enforce existing laws and regulations.

The lack of domestic budgetary resources for parks and forestry is not so entirely devastating for a country like Costa Rica. In that case, the fame of the parks, articulate U.S. scientists, exotic species, and a Nobel Prize-winning president have attracted sympathetic attention and financial support from environmentalists throughout the world. But the more important problem -- with which I think all serious environmentalists would agree -- is that Central American governments need the solvency (apart from the will) to meet the long-term recurring costs of environmental sustainability with internal resources.

To illustrate the point, let me move beyond parks. Let us take, for example, the more prosaic issue of rural road maintenance.

In most of Central America, feeder roads are normally built and maintained through three-way collaboration by rural communities, the provincial government, and the central government. Villagers usually provide labor and some locally available materials; yet without the inputs that only the provincial or central government can provide -- mainly skilled engineers and short-term use of heavy machinery -- feeder roads literally come apart. Without seasonal applications of new rock, roadgrading to level ruts, and properly engineered culverts to handle the runoff from the tropical rains, the roads wash out. Landslides often begin on the soaked, crumbling road banks and then destroy adjacent fields. Every year, countless tons of irreplaceable soil are lost; streams and rivers silt up. When the state or provincial governments can't hold up their end of road maintenance, the costs are not just a few broken axles and expensive vegetables. The cumulative downstream costs of a few thousand avoidable washouts inevitably add up to new external borrowing for road and bridge replacement, dam repair, lost hydroelectric capacity, marine pollution, and diminished agriculture.

Central American countries typically switch back and forth in their borrowing -- first to the banks, then to the environment, then to the banks. In the feeder road example, a country may have borrowed from, say, the Inter-American Development Bank to build roads. The debt crisis means the country does not have the liquidity to maintain the roads. So as a short-term solution, the country borrows from the environment. Yet that line of credit, too, is soon exhausted. So it's back to the banks.

This kind of cross borrowing has been going on in Central America for many years. The example given here refers to infrastructure. But an analogous argument can be also be made for agriculture, and less directly, for industry.2 As a result of years of cross borrowing, Central America's full debt burden is not just economic, it is economic _and_ environmental. And because of that, I am going to make a gloomy prediction:

Despite stabilization successes, improved import/export ratios, and Costa Rica's recent agreement with the IMF, Central America, I believe, has _not_ weathered its debt crisis. At best, it has weathered its first phase, the economic crisis of the early 1980s. The second phase, however -- the one which is

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2. This argument is developed more fully in _Costa Rica's Dual Debt: A Story from a Little Country that Did Things Right_, Sheldon Annis, with Katherine Griffith, Jenny Springer, and Joe Stuckey (Washington, DC: World Resources Institute, 1987).

related to water quality, energy potential, topsoil fertility, and biological reserves -- is still building and has yet to be fully delivered. We can expect that crisis to mature over the next 20 years.3

Unfortunately, Central America does not only have commodity prices, exchange rates, and LIBOR to worry about. For all our warm, Disneyesque associations with Mother Nature, the chubby little lady with the twinkly wand is a far more unforgiving creditor than Citicorp. She is far harder to negotiate with than the IMF, where at least there is political leverage.

Certain facts of the matter seem to me indisputable. First, whatever their other differences, virtually all Central American countries are primarily agrarian societies. Second, their agricultural economies have been built upon resource-consuming technologies -- for example, cattle raising. And third, they are tiny countries. Points one and two might not be so significant if every country had 2 million fresh square miles to colonize west of their Mississippi river. But they don't.

With the essential facts so simple, I believe that phase two of the Central American debt crisis is going to be incredibly difficult to prevent. Why?

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3 To understand why, you need not be an economist. You just have to fly in a plane over Central America's hills; drive up and down the Pacific Coast; try swimming in a river. Those who do not have the opportunity for first-hand confirmation should see Natural Resources and Economic Development in Central America by Jeff Leonard (New Brunswick and Oxford, UK: Transaction Books, for International Institute for Environment and Development, 1987), who is testifying here today.

1. In terms of Central America's agricultural productivity, the "easy" land has now been used up. Costa Rica does not have a second Central Valley; nor does Guatemala have a second Pacific Coast. Throughout the region, the richest agricultural lands have been urbanized, colonized, destroyed, or are already in full production. It is nonsense to suppose that Central America can simultaneously feed its growing population, export its way out of external debt, and finance domestic development by relying on reclaimed cattle pastures and pesticide-saturated cotton fields.

2. The economic debt makes environmental recovery appear unaffordable. What we are talking about is expensive -- and of course, it is inevitably more expensive the longer it is deferred. Austerity -- which seems to be our best answer to date -- is no answer to a problem of accumulating negatives.

3. Just as Central America eventually had to confront economic debt servicing beginning in the late 70s -- the straw which broke the camel's back -- so too is it now beginning to have to "service" its environmental debt. "Servicing" in this sense means using scarce or borrowed economic resources to pay for reforestation, irrigation to combat desiccation, compensatory fertilization, deferred infrastructure maintenance, or energy costs to transport water long distances. These are nondeferable, above-and-beyond expenses that are a product of past borrowing.

4. Much of our economic planning for Central America is, I believe, based on wishful thinking. If you know rural Central America, discussions of "nontraditional exports," "knowledge-

based industries," the "Taiwan model" can sound downright silly. Of course we would like to see Central America restructure its socially unjust, resource-consuming agrarian economies into something better. Yet will that happen before the environmental debt comes due? Sure, about as easily as Detroit deciding one morning to restructure itself toward high-fashion clothing manufacture.

5. Finally, social inequity in Central America is not getting any better. To the contrary, it may be getting worse, in part because of the environment.

This is a key point -- that poverty will exacerbate the economic-environmental debt crisis, and vice versa. I would like to elaborate briefly.

Throughout the 1970s, large farmers throughout Central America greatly benefited from the ease with which they could borrow -- both from the banks and from the land. Large farmers enjoyed a much wider range of socially-biased incentives, most of which were provided by public policy and reinforced by external borrowing. Not all Central American countries are identical; but typically, large farmers throughout the region enjoyed . . .

--plentiful production loans at negative real interest rates;

--research and agricultural extension services geared toward their needs;

--overvalued exchange rates that effectively lowered the cost of imported machinery and heavy equipment;

--reductions or exonerations from tariffs;

--government-financed crop insurance programs that heavily favored large farm crops;

--low tax rates on the traditional commodity exports;

--an array of generous export incentives;

--privileged access to agricultural ministries;

--a banking system heavily biased in favor of large farmer loans;

--a willingness by banks to make endless bridge loans and to tolerate low repayment rates in bad crop years;

--and strong reluctance on the part of anyone to look critically at the environmental consequences of large farm agricultural activity (especially cattle raising).

As a general result of these policies, agricultural exports grew in the 1970s -- but not as fast as imports and not as fast as debt. Not surprisingly, large farms generally got larger. At the same time, the poor not only became relatively poorer, they became correspondingly "more landless." A large number of subsistence farmers became sub-subsistence farmers.

Here is an important distinction to be made from an environmental point of view. There is a crucial difference between land use by rural people who are merely "poor" (campesinos), and land use by rural people who are "very, very poor" (squatters, landless laborers, or subsubsistence farmers).

To illustrate: in the Guatemalan village where I lived in the late 1970s, I used to marvel at the elegance with which poor farmers could optimize every available scrap of resources -- every ridge of land, every surplus hour of time, every channel of water, every angle of sunlight.[4] Though the Indians where I lived are surely poor, they do own their own plots of land. They depend upon and care for what it is theirs. When I go back to the village, I always find that my friends' fields look just as I remembered them.

Ten years ago I also worked in Guatemala's northern Quiché province, which for many reasons is much poorer than the town where I lived.

There, I recall one day watching in horrified fascination as an Indian farmer and his son planted their a plot of corn on a forested slope. The land was so steep that the son had to be held in place with a rope looped around his waist. As he hopped from furrow to furrow, his father let out slack from around a tree stump.

When I returned to that spot recently I was not surprised to find that the farmer and his son were no longer there. And neither was the hillside. What remained was a reddish, eroded nub -- which looked just like the next and the next and the next former hillside.

The difference between "poor" and "very, very poor" farmers is not intelligence or agronomic skills. Rather, one set has the minimum resources with which it makes sense to conserve and invest in the land. The other -- always one step ahead of hunger

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[4] The intense use of microresources is described in detail in "Milpa Logic and Wealth Differentiation" in Sheldon Annis, God and Production in a Guatemalan Town (Austin, TX: University of Texas Press, 1987).

-- has no choice but to consume the environment and then move on.

I would hypothesize that within the spectrum of poverty there is a turning point at which the "environmental good use curve" reverses itself. Any set of forces that cause a downward shift in the number of people below that point is likely to have a deleterious effect upon the environment.

One such force is the weight of the external debt, which is not so distant from northern Quiché as you may think. To the extent that external debt leads to further rural impoverishment, it helps destroy the environment. Similarly, to the extent that last year's environmental borrowing also leads to more human poverty, that too encourages the downward spiral. Thus, from an environmental point of view, the implication is that we must reduce the number of rural people who are landless and very, very poor; and at the same time, help assure that people who are merely "poor" do not slip backwards.

This is going to be extraordinarily difficult to accomplish. As I have said, past policies have tended to make the rich richer and the environment poorer. In addition, I greatly fear that the somewhat hysterical emphasis on agricultural export will rationalize a continuation of Central America's past into its future.

What must be done?

No one has the answers. But several pieces to the puzzle seem relatively clear.

First, there must be significant overall debt reduction in

Central America. As you know, the individual countries' respective debt burdens, their prospects for growth, and the kinds of creditors they face vary greatly. The heavy commercial debt of Costa Rica is a far different matter from the relatively more manageable official indebtedness of Honduras, Salvador, and Guatemala; and the flatly unmanageable debt of Nicaragua (as well as the Nicaraguans unwillingness to pay it) is yet again another matter. My colleague at the Overseas Development Council, Richard Feinberg, is now preparing for you a detailed set of policy recommendations that reflects each country's differing needs and abilities.5 A comprehensive debt reduction plan is essential for the environment. If not, the best-intended piecemeal efforts -- if carried out in a context of macroeconomic crisis -- are almost certainly doomed to failure.

Second, in thinking about debt management, we must recognize that an export is not an export is not an export. There is wide variation on the social value and environmental costs of various export strategies; and in some cases, less can mean more.

Therefore, when carrying out country-by-country analysis of debt, we must at the same time be able to finely analyze the environmental costs and social implications of alternative growth strategies. As badly as dollars are needed, all export growth is not neutral and it certainly is not necessarily good. Just as one debt reduction formula does not fit all, neither does one

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5 Richard E. Feinberg, "Central American Debt: Genuinely Case-by-Case Solutions". Paper presented to the International Commission for Central American Recovery and Development, April 1988.

export strategy.

Third, in regard to traditional development assistance, we should maintain and strengthen our orientation toward poverty-oriented strategies. For environmental reasons, these strategies should heavily emphasize targeted programs that seek to help the very poorest rural people, especially those who are landless. This implies land redistribution, land titling, nutrition, rural employment generation, primary health care, basic education, and support for grassroots organizations. The key to the debt crisis -- both economic and environmental -- is to create productive relationships with the land by those who are poor.

Fourth, in recent years, our bilateral aid program in Central America has greatly expanded its environmental content. Let me simply applaud and commend that. Also, recent regional agreements -- such as the border park between Nicaragua and Costa Rica -- are highly promising. We should warmly endorse regional initiatives of this sort.

Lastly, I come to debt-for-nature swaps. This is something new and may require a few words of explanation. Let me briefly explain how these swaps work.

The basic idea is this: A non-profit international environmental organization (for example, the World Wildlife Fund or Conservation International) arranges with a commercial bank to buy a piece of discounted Third World debt. Basically, the U.S. non-profit group then forgives the commercial debt in exchange for a commitment by the indebted government to set aside parkland or do something else which both parties agree is environmentally constructive -- for example, to fund environmental education programs or support local nongovernmental organizations working on environmental issues.

For the government, this is appealing because, in effect, a small amount of dollar-denominated debt can be paid off in local currency. So long as the amount is not so large as to risk inflation (which can be mitigated by use of bonds), then this is a relatively painless and constructive way to shed a small amount of debt.

In order for this deal to be attractive from the US end, the contributing organization must receive a preferential exchange rate that is greater than the secondary market value of the debtor's obligation. This in effect "multiplies" the investment. A relatively small dollar contribution creates a relatively large amount of local currency when converted through the debt swap mechanism.

The first major debt-for-nature swap occured in Bolivia. With a $100,000 donation, Conservation International went into the secondary market and purchased $650,000 worth of debt that was then selling at 10 to 15 cents on the dollar. Citicorp acted as financial intermediary. In exchange for forgiving the debt, in July Bolivia set aside 3.7 million acres of Amazon basin around the existing Beni Biosphere reserve. Bolivians retain ownership and management of the land. They have set aside $250,000 in local currency as an endowment for managing the land.

In a second swap, the World Wildlife Fund purchased $1 million of Ecuadoran debt from Bankers Trust. It paid $300,000. Ecuador's Central Bank will convert the debt into nine-year bonds, which will be held by Fundación Natura, a local conservation group. As the bonds are gradually converted into local currency, they will be used to maintain parks and wildlife reserves, train scientists, and teach children about conservation. The Central Bank has authorized a debt-for-nature program totaling $10 million.

The debt-for-nature idea generated a torrent of publicity and interest. Swaps are now being discussed all over the world -- in Argentina, Peru, the Dominican Republic, Brazil, Chile, Jamaica, Mexico, and the Philippines. In addition, the debt-for-nature idea has prompted many non-environmental groups to ask what other activities could be financed by debt conversions. In recent months, I have heard talk of potential "debt-financed" educational exchanges, university consortia, orphanages, microenterprise loan funds, and agricultural projects for medium-scale farmers.6

In August, Costa Rica announced a program to convert up to $5.4 million in debt. This represents roughly one-thousanth of Costa Rica's total external debt.

The dollars received through the swap will allow the government to sell interest-bearing "nature bonds." These will

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6 My reservations about these plans are set forth in Patti Petesch and Sheldon Annis, "'Debt-for-Development' Plan Is No Gift for the Third World," Los Angeles Times, December 9, 1987.

help finance conservation programs, including land acquisition, park management, research, and community education. The swap involves both nongovernmental organizations and official park agencies. The initial $5.4 million has been sold; and there is now talk of raising the allowable limit, perhaps to $50 million.

Last July, President Arias expanded the boundaries of the Guanacaste National Park. This will help secure about three-fourths of the dry rainforest area that has been proposed by University of Pennsylvannia biologist, Daniel Janzen.[7] The remaining quarter of dry forest will become a "protected zone" -- meaning that property owners cannot change the use of the land or sell it for non-park purposes. About $4 million is still required to buy up the rest of this land. The debt swap will make it considerably easier for Professor Janzen and environmental organizations to raise this amount.

* * *

Despite the appealing nature of these plans, there are two large categories of argument *against* them.

The first is a moral argument -- that debt-for-nature exploits the debt crisis rather than solves it. The fundamental argument boils down to a bottomline conviction that Latin American governments cannot pay the debt, should not pay the debt, and will not pay it. From this perspective, the debt-for-development idea is largely a distraction. It condones rather than decries the debt, settles for too little, and turns humanitarian groups and environmentalists into bedfellows with commercial bankers.

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[7] Professor Janzen has spent many years studying the dry tropical forests that once covered the western slope of Central America. Only about two percent of these dry forests remain in Costa Rica. This last fragment, which includes about 430 square miles in Guanacaste, contains an estimated 350 species of birds and 160 kinds of mammals. Janzen's idea is to link and regenerate natural ecological areas around the Santa Rosa Park.

A second set of anti-swap arguments are more technical. These have to do with a complex body of banking regulations and national laws -- how to isolate "small" pieces of debt, who owns and has responsibility for what, the inflation risks of foreign bonds, public versus private debt, tax breaks for banks, overhead for U.S. nonprofits, etc. My own sense is that these technical problems are not insurmountable. On the other hand, the sheer complexity of working out these swaps may well set practical limits on how much debt can actually be converted.

In many ways, I wish I could conclude this testimony with a table-thumping plea for debt-for-nature swaps. I wish it were as simple as that. But unfortunately, it is not.

That is because it is the non-swapped 99.99% of the debt and the land outside the parks that we really have to worry about.

In Costa Rica, the swap mechanism is moving beyond the parks and it will significantly help nongovernmental groups engage more aggressively with their nation's problems. That is a constructive step.

But the heart of the matter is this: Central America has yet to feel the full force of the debt crisis that is brewing. We have to do more than invent clever ways to finance worthwhile environmental activities. Working with Central Americans, we have to _solve_ the debt crisis -- the real one, the whole one.

TESTIMONY OF

WALTER ARENSBERG

**Director of the Environmental Planning
and Management Program,**

INTERNATIONAL INSTITUTE FOR ENVIRONMENT AND DEVELOPMENT

before the
Senate Foreign Relations Subcommittee
on
International Economic Policy, Trade, Oceans and the Environment

April 27, 1988

Mr. Chairman:

I am Walter Arensberg, director of the Environmental Planning and Management program of the International Institute for Environment and Development, a center of the World Resources Institute. I am honored to have been asked by your committee to testify on the institutional capacity of Central American countries, through both government and non-governmental organizations (NGOs), to achieve environmentally sustainable development.

Our organization is field-oriented, actively working to help build the capacity of public and private institutions in the developing world. The Institute has done this, under its cooperative agreement with the U.S. Agency for International Development, in producing environmental profiles and resource assessments, such as the one my colleague Jeff Leonard wrote for us on Central America, and through our program to strengthen local NGOs in the developing countries. We are also about to complete a study with Harvard University's Energy and

Environmental Policy Center (EEPC) analyzing the institutional response of Central American countries to environmental problems.

The institutional response of each Central American country to environmental concerns raised over the last 15 years has depended upon the characteristics and conditions of each society. The existing variations among government schemes for addressing sustainable development demonstrates that they are still looking for appropriate institutional responses. It is clear, however, that the complementarity offered by the contributions of both government and private efforts have been important in both identifying problems and in testing solutions.

In the EEPC study, we've found a wide range of institutional arrangements for dealing for natural resource management and the environment. Interministerial commissions were formed in some countries; in others, existing ministries had new responsibilities assigned to them. Sometimes entirely new institutions were created. What is clear is that the complex, multidisciplinary nature of sustainable development problems will require great efforts at coordination and communication in order to arrive at effective solutions.

For example, in addressing such problems, Costa Rica created in 1981 the National System of Environmental Protection and Improvement (SINAPROMA) with a board composed of seven ministers, two presidents of autonomous institutions, a national community development director, one representative each from the private sector and an environmental organization. Although this approach draws together the various agencies whose responsibilities touch on the management of natural resources, they are still searching for specific guidelines or policies to integrate the activities of government institutions that have responsibility for resource management. Without such efforts, we can expect an increase in the duplication of mandates and responsibilities in Costa Rican institutions. Water resources, for instance, come under seven institutions with overlapping functions --four carry out administrative tasks, five support research and three are doing special studies. There are conflicts of interest between at least two institutions that regulate water for irrigation uses and for hydroelectric purposes.

Costa Rica is not unique when it comes to the need for clear lines of responsibility and inter-agency coordination. Guatemala, for example, assigns natural resource administration to the Ministries of Interior, Agriculture and Cattle, Health, Public Works and Transportation, Mines and Energy; but planning work is done by the general secretariat of the National Economic Planning Council, the Livestock and Food Planning Unit, the General Administration of Agriculuture Services, the General Administration of Cattle Services, the Technical Office of Fishing, the Unit of Rural Waterworks -- I could go on. All these organizations must implement programs through the Agrarian Reconstruction program, the Irrigation and Drainage program, the Forest Plantation program and so forth. The lack of mechanisms for effecient collaboration results in dispersion of efforts and lack of coordination of activities that might be effective if there were participation by all concerned.

Legal structures often present a confusing configuration of laws. Honduras, for example has a law to regulate polluting industries in rural areas, a municipalities law to regulate the health aspects of all industries, a fisheries law to regulate threats to its marine resources and a forestry law to protect forest resources. The Ministry of Natural Resources has an ecology unit to protect, conserve and restore the environment. The conceptual approach is adequate, but the technical and budgetary support are not there. As a result, most of Honduras' good intentions are left on paper and never become reality.

The Central American governments are willing to work on better management of their natural resources in order to improve the lives of their people and the productive capacity of the resources that support their economies. But these governments face problems of huge external debts with needs for immediate results, as my colleague Sheldon Annis has explained. Investment in solutions that provide long-term, sustainability of the natural resource base can be seen as providing no immediate returns with currently applied methods of economic analysis.

While governments have struggled to deal with these constraints, advances have been made by private institutions that have emerged over the last decade. In fact, some of the most effective efforts in sustainable development may be carried out by non-governmental organizations.

In 1974 when the International Union for the Conservation of Nature and Natural Resources called a meeting of Central American environmentalists, 46 people attended. Last year 160 people came, only four of whom had attended the first IUCN conference. Forty non-governmental organizations were represented, and a new network of regional NGOs for sustainable development (REDES) had been launched only six months earlier. This is a major advance.

However, Dr. Gerardo Budowski, one of the few experts in natural resource management who has been working in the region for three decades, cautioned about the enthusiasm for what he called the "NGO phenomena."

"There is a major change in the number and strength of NGOs but be careful. Thirty of the NGOs that existed in 1974 are now defunct," he warned.

What are the forces that have contributed to the creation of so many non-governmental organizations? What are the capacities and the limitations of these private institutions?

Non-governmental organizations are created by groups of individuals who share a common interest and who feel, as a result of their association, that they can contribute to improving their society.

In Central American countries, many of these citizens' organizations have been created in response to the critical, time-pressured intersection of severe economic problems and rapid consumption of the natural resource base. Many NGOs are formed and set their program priorities in order to be complementary to existing government institutions.

In some cases, these citizens' organizations have become national leaders in furthering sustainable development. They may receive financial and technical assistance from international agencies much as their colleagues in goverment do. As non-profit and independent institutions, they offer advantages such as greater flexibility, increased creativity and relative autonomy from government bureaucracy. They also are in closer contact with the citizens to whom the policies and assistance are directed. For these reasons, the responsibility for carrying out sustainable development activities has fallen increasingly on NGOs.

Yet the risks of relying too heavily on NGOs, and their inherent limitations, need to be addressed. NGOs cannot be expected to carry out all functions not coverd by governments, nor should they be perceived as institutional extensions of international groups. The establishment of a stable, non-profit organization takes many years. To be effective and survive takes extensive and diverse national support systems for financing and operations, a staff with a lot of stamina, determination and deep commitment to their work. All of these things take time to establish and grow. They are not easy to maintain. Many of the NGOs with whom we work are at a very youthful stages of development.

Institutional strengthening is a means of supporting both government agencies and NGOs as they manage sustainable development in their countries. This work requires cultural sensitivity and careful planning with the individuals involved to make sure any help fits into the unique social and political mosaic of their country.

Institutions need individuals with technical skills in a variety of natural resource areas, but they also need skills in community development, in communications and interpersonal skills for internal management and external politics, associated with building a local constituency for sustainable development.

The strengthening of an institution, through partnership activities, must involve an investment in the training and development of individuals as professionals to provide these skills. The kind of training offered should not pull these individuals out of their organizations, away from their homes for long periods of time. Short-term courses and in-country workshops may be the best way to improve skills without disrupting the organizations and individual lives.

Education and training opportunities have to be relevant, not copies of U.S. programs. This means developing the appropriate textbooks and courses in the Central American context. Training and educational assistance shouldn't necesarily concentrate on scholarships to U.S. institutions, although increased access for a wider social group in Central America --not just the elite who usually know the ropes-- would be useful. The training opportunities should be built within the existing institutions in Central America -- the universities, institutes, and extension programs.

Our experience in Central America has led us to believe that training programs must emphasize a multi-sectoral approach. There are many untapped resources in the complementary talents of conservation-oriented professionals and those working in community development. Some conservationists --once strictly interested in setting aside parks and cataloguing species-- have now recognized the need to work at the community level on issues of land tenure or alternative employment or land use. To keep people from invading a forest reserve, there must be some other way for them to feed their family. This is why conservation groups are beginning to turn to development groups, who have the expertise in areas like small enterprise development planned extraction of natural resources, traditional handicrafts, and other means to create alternative employment.

Multi-disciplinary curriculum options are needed. How often has the young forestry or agriculture extension agent, well-trained in the technical areas, been frustrated in the village where solutions to a particular problem depend on economic and social factors?

The forestry extension agent probably never took courses in rural sociology, cultural anthropology or law. Yet his success in a village may be determined by his ability to deal with local leaders, to organize local participation and to address land tenure concerns.

Effective, long-term natural resource projects will depend on more than just scientific research, legislation, aid money and the number of experts mobilized. Working at the grassroots level, the NGOs must be ready to respond to social or economic problems in new ways. Their communication with and support from government agencies will also be essential.

Additionally, international support must be flexible to respond to local needs. For example, an environmental NGO in Costa Rica came to IIED with a request to help publish a popular, illustrated version of the national forestry law, its tenure provisions and land use implications. When a copy of the law was obtained the legal language was so obscure even the university-educated NGO leaders had trouble reading it. Is this an environmental project --helping farmers to understand the laws? Yes. Would it fit into most specific funding priorities or designated categories for environmental projects? No. The **flexibility to respond** to what local NGOs and agencies perceive as their best answer to a problem is a key to effective institutional support or donor assistance.

In summary, to help strengthen institutions that can carry out sustainable development policies, certain fundamental criteria should be observed. Assistance should follow the initiatives taken in the region, not the agendas in Washington.

Flexibility to respond to local institutions is essential to improving the type of assistance given.

Aassistance should be directed to the people who run these institutions. Training and educational opportunities are needed; these opportunities must be multi-disciplinary, reflecting the local needs and existing knowledge from the region itself.

Governments and NGOs have a complementary role in carrying out sustainable development. They must learn to depend on one another and work together more effectively. There must be a holistic approach which integrates environmentally sustainable development into all national policy. Furthermore, the growth of effective institutions to carry out these policies takes a long time.

The people of Central America are well on their way to responding to the needs of their countries.

The international support that we provide must take these factors into consideration.

Thank you.

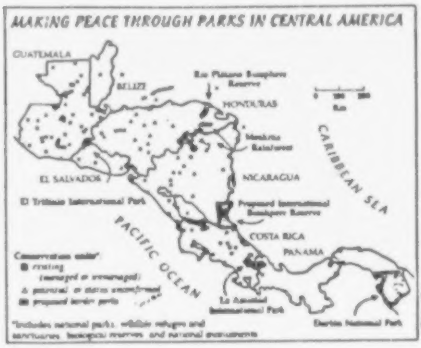
PEACE THROUGH PARKS

PROMOTING PEACE AND SUSTAINABLE DEVELOPMENT IN CENTRAL AMERICA

International parks and nature reserves can help promote peace and environmentally sound development in Central America by requiring a cooperative effort between neighboring nations. These zones could become centers of internationally significant research and economic development through tourism and rational resource management.

INTERNATIONAL PARKS IN CENTRAL AMERICA FIRST PROPOSED IN 1974

The idea of creating international reserves in the region emerged at the First Central American Meeting on the Conservation of Natural and Cultural Resources in San Jose, Costa Rica in 1974. In the years following this meeting, a number of Central American countries began to dedicate some of their scarce economic resources to protecting shared natural resources and promoting sustainable development in border regions. The La Amistad International Park on the Costa Rica-Panama border, and El Trifinio, a tri-national park on the borders of Guatemala, El Salvador and Honduras are results of these efforts.


MAKING PEACE THROUGH PARKS IN CENTRAL AMERICA
GUATEMALA
BELIZE
Rio Platano Biosphere Reserve
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EL SALVADOR
NICARAGUA
El Trifinio International Park
Proposed International Biosphere Reserve
PACIFIC OCEAN
COSTA RICA
PANAMA
Conservation units*
existing
(managed or unmanaged)
potential or status unconfirmed
proposed border parks
La Amistad International Park
Darien National Park
*Includes national parks, wildlife refuges and sanctuaries, biological reserves and national monuments

THE ARIAS PEACE PLAN AND THE CENTRAL AMERICAN ENVIRONMENT

When the five Central American Presidents signed the Esquipulas II peace accords in August 1987, they inspired hope among Central American environmentalists as well as concerned scientists and citizens around the world that the military activities currently ravaging the region's environment would come to an end.

The Arias peace plan also breathed new life into the movement to create international parks in the region, which had been languishing as a result of the regional conflict. Within months, all five governments demonstrated their political will to support peace through parks. Inspired by the peace plan, the Vice-Presidents of Guatemala, El Salvador and Honduras signed a joint agreement on November 24, 1987, declaring their common border area, known as El Trifinio, a biosphere reserve. On February 5, 1988, Costa Rica's Minister of Natural Resources, Alvaro Umana, and the Director of IRENA (Nicaragua's environmental agency), Julio Castillo, signed a letter of intent to create an international biosphere reserve on their border. This is an exciting new initiative.

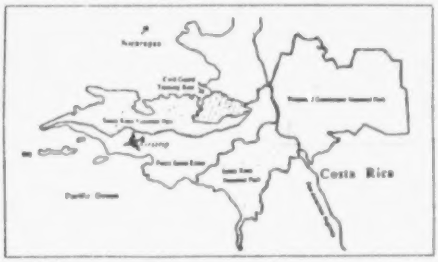
Costa Rica's and Nicaragua's Agreement to Create a Peace Park

Costa Rica's and Nicaragua's proposed International System of Protected Areas for Peace (SI-A-PAZ) would conserve 6,000 square kilometers of pristine tropical rainforests and wetlands in its core area alone. SI-A-PAZ (which translates "Yes to Peace") is an integrated development project which aims to protect precious natural resources on both sides of the border while promoting economic development in surrounding zones, thus raising the standard of living of people in the zone and contributing to peace in the region. As Costa Rica's Minister Umana recently told a press conference, SI-A-PAZ "is very closely allied to the whole peace process, to the whole development process that we're trying to start in Central America."

A U.S. POLICY BASED ON PEACEFUL COOPERATION INSTEAD OF WARFARE

Parks that span borders could play a crucial role in easing tensions on the isthmus. The agreement signed by Costa Rica and Nicaragua to create an international reserve on their common border is complementary to the Arias peace plan and is an example of the potential for constructive cooperation among Central American countries.

President Oscar Arias Sanchez reflected this cooperative spirit when he spoke to a crowd gathered to witness the annexation of the Santa Elena Peninsula in Costa Rica into a national park -- a piece of land purchased with funds solicited by the National Security Council from third countries to build a secret contra landing strip:



> **"What do we do with this region of conflict? We make it into an area to study nature. We don't send soldiers with instruments of death. We send students, scientists and naturalists with the instruments they need for their intellectual work."**
>
> **President Oscar Arias Sanchez**

INTERNATIONAL PEACE PARKS DOVETAIL WITH THE ARIAS PEACE PLAN AND ARE THE KIND OF CENTRAL AMERICAN INITIATIVES CONGRESS SHOULD SUPPORT.

For more information, contact:
Bonnie Souza or Brent Blackwelder,
544-2600

New York Times, April 20, 1988

Greening Central America

By John B. Oakes

Almost all the world has been watching (and applauding) as the Sandinistas and contras inch along in the "peace process" after more than six years of war.

Almost none of the world has been watching (or noticing) as the Sandinistas and their neighbors take forward steps in another kind of peace process.

It has greater potential for Central America's long-term stability than the cease-fire negotiations. It is designed to combat another kind of war — a war that has victimized every Central America country for generations.

This is a war against the once-boundless — now fast-disappearing — natural resources on which Central America's future prosperity rests: land, soil, forests, waters, fisheries and wildlife. Deforestation, erosion, siltation, pollution and irreplaceable loss of plant, animal and marine life is one result of this war. Disruption, impoverishment and degradation of human life is the other.

Misguided World Bank policies and misdirected United States aid programs can, and often do, make matters worse by disregarding the effect of grandiose projects on the diminishing resource base and the lives of the people that depend on it.

The result: a vicious circle of steadily increasing social disintegration and economic distress, with political turmoil the consequence. Each of these factors is partial cause, partial effect, of the other. A reversal in this process could change the face and economy of the region. It may be beginning.

Last Feb. 5 was a key date. On that day, Nicaragua and Costa Rica agreed to work out plans for protection and economic management of a huge international "peace park" on both sides of their common, occasionally conflict-ridden, border along the San Juan River — including (in Nicaragua) a major tropical rain forest until recently marked for destruction.

Only two months earlier, Costa Rica had agreed to go ahead with a somewhat similar plan for its side of a designated "peace park" sprawling across its border with Panama. Shortly before that, Guatemala, Honduras and El Salvador had decided on another such preserve in the mountain forest where their borders meet.

Each of these multiuse projects would create "biosphere reserves" of totally protected core areas surrounded by buffer zones for sustainable economic development, ranging from forestry to subsistence agriculture and more efficient use of misused ranch and farm lands. In this way, the continued march of half-starved landless peasants into ever more marginal areas, to scratch out a miserable living from denuded and eroding hillsides, may yet be stopped.

The San Juan River project would never have got off the ground if, in a sensational move last June, President Ortega had not suddenly canceled a contract with the Costa Rican lumber company that, having clear-cut much of Costa Rica, was now about to begin its clear-cutting operations across the border. What was saved is one of the last large stands of its kind in Central America and one of the most biologically rich and diverse tropical rain forests in the world.

When news of the contract leaked out in 1986, a storm of protest erupted in Nicaragua. The Sandinista bureaucracy's response would have sounded familiar in Washington: Clearing out the forest was a national defense matter because it would also clear out the contras who had been operating from there — and, anyway, the $2.5 million annual revenue from the lumber operation far outweighed, in Nicaragua's straitened wartime economy, any long-term ecological damage.

President Ortega's action not only insured preservation of the rain forest but opened the way for the agreement with Costa Rica to develop a comprehensive management structure for the entire San Juan watershed. Nicaragua's national parks director, Lorenzo Cardenal, says he hopes this will become "a worldwide model of sustainable tropical rain forest development."

The surest way to help the Central American people restore their economy and stabilize their politics would be to direct foreign aid money and expertise to this type of long-range conservation and development program. A tiny young organization called the Environmental Project on Central America has been a leader in American support for the San Juan program, and some larger American and foreign groups, including the Netherlands and Swedish Governments, strongly back it. Our Government is conspicuously absent.

The Central Americans are beginning to learn that a deteriorating environment means deteriorating economics. Deteriorating economics in an undeveloped country means deteriorating politics. It is time we in the United States learned that lesson. ☐

John B. Oakes is former Editorial Page Editor of The New York Times.

Contact:
Bonnie Souza or Brent Blackwelder
(202) 544-2600

The Conservation Foundation

MANAGING CENTRAL AMERICA'S RENEWABLE RESOURCES;
THE PATH TO SUSTAINABLE ECONOMIC DEVELOPMENT

ADDENDUM

by:

H. Jeffrey Leonard
Director
International Development Program
and
Cecilia Danks
Junior Associate

The Conservation Foundation

written response to questions prepared by
Senator Terry Sanford in conjunction with
hearings on "Environmentally Sustainable
Development in Central America", Senate
Foreign Relations Subcommittee on
International Economic Policy, Trade,
Oceans and Environment

May 12, 1988

1. **Land reform is such a delicate and difficult problem. How can bilateral and multilateral development bank assistance promote land reform in Central America?**

Land reform is indeed difficult for international agencies to address because it involves questions of internal politics and national sovreignty. Still, it is clear that in some countries bilateral and multilateral assistance programs cannot promote economic development without addressing land reform needs. Just as important, given my testimony that the best lands of the region are under-utilized, development assistance programs must focus on changing current patterns of land utilization. This is a broader objective than land reform alone -- and it may be more directly influenced by changes in international lending and assistance policies. The way in which the land is used determines the economic benefits and/or the environmental degradation of activities in the rural sector. Even under existing land ownership patterns, much greater employment could be generated if land use patterns were changed. A big farm that is used for extensive cattle ranching may employ a few gauchos; while if used for food or commercial crop production the same farm might generate a large number of jobs.

It is access to resources, not simply land ownership, that that affects land utilization. Much of the agricultural credit in the region is available only to large landholders growing certain favored export crops. Cattle-raising, especially, is an activity that has gotten a disproportionate amount of credit. Incentives for the cattle industry have generally favored extensive use of pasture on large ranches and has directly contributed to deforestation in some areas. Rural credit programs and subsidies should be used more strategically to foster productivity of the more efficient small and medium size farms.

Security of land tenure is also necessary to the development of the rural sector. Without security, there is no incentive to invest in land management practices that would reduce erosion. Some countries need to change the criteria used in granting titles and credit. Credit is usually available only to those who can show clear title to the land. In many cases, to gain title, farmers have to show "improvements" to the land, which usually means cutting down the trees, even in areas where steep slopes or poor soils will lead to degradation of the land when trees are removed.

We need to identify and remove the disincentives to sustainable agricultural production. Many of these disincentives are reinforced in credit and other rural development programs carried out by the development programs carried out by the development banks and assistance agencies.

2. **Do you believe that the U.S. would be hurt by committing resources to increasing agricultural production in Central America, as the Kissinger Commission recommended?**

As I mentioned in my testimony and described more fully in my book, we need to bolster agricultural production by the small and medium size farmers. Small-holders produce the food for local consumption and export to neighboring Central American countries. Right now, the countries of Central America are importing much of their basic foodstuffs -- even though they derive most of their foreign exchange from agricultural exports. As shown in my book, food imports have increased and per capita consumption has dropped in recent years. If those countries can reduce imports by bolstering local food production, it would be equivalent to acquiring dollars by increasing exports. Either way, they would have more dollars available to service their foreign debts.

Central America will never compete with the U.S. in its major exports crops -- wheat, soy beans and corn -- because they do not grow well in tropical climates. Central America will continue to import wheat from the U.S.. China has become a much more formidable competitor in the cotton market than Central America could ever become. The U.S. imports nearly ten times more beef from Australia and New Zealand than it does from the seven nations of Central America combined. Farmers producing traditional U.S. products have nothing to fear from Central America.

The scale of production in Central America is very small compared to the U.S.. All of Central America would fit very comfortably inside of Texas. A volcanic mountain range runs down its spine, reducing the amount of land suitable for farming. Only fourteen percent of its land area is cultivated. Much of that area is devoted to export crops -- coffee, bananas, and cane sugar -- which do not compete with U.S. producers. In fact, U.S. consumers benefit from Central American participation in the international markets of these desirable products.

Fostering agricultural production in Central America would additionally benefit the U.S. by promoting peace and prosperity in the region. People tend to support extremists and violent approaches when their basics needs, such as food and adequate urban services, are not met. The flow of the rural poor to the cities can only be stemmed by providing them with economically viable alternatives in rural areas. They should be helped to produce the food that can feed the local population and reduce imports. The reduction in U.S. expenditures on security in the region will far outweigh any competition that Central America could provide in U.S. markets.

Development agencies and banks should, however, pay much greater attention to international markets when designing plans for rural development in Central America. The diversification of agricultural production is a high priority in almost every national economic development plan because the price of many traditional exports has dropped. Many of the specialized crops being promoted are well suited to small-scale producers because they require intensive farming methods and can be grown in conjunction with basic food crops. However, the markets for such products, like macadamia nuts, ornamental flowers and cardamom can be fairly limited. Assistance agencies and development need to consider market saturation and be careful not to prescribe the same set of crops to all countries. Otherwise, relatively inefficient produces countries like those in Central America may find that they have gone into more debt only to be in acute competition with each other for a share of a small market.

I would refer the Senator to the text of my testimony that I have placed in the record of these hearings for further elaboration on this point.

In regard to the Senator's request for information about the utility of debt-for-nature swaps in Central America, I enclose some background information from World Wildlife Fund, the leading proponent and practioner of such swaps. Suffice to say that such swaps will never have a major role in reducing the debt service burden faced by Central American countries. We also need to judge the potential inflationary impacts of agreements that require governments to generate local currency in return for dollar denominated debt, especially where income and job producing investments do not result. Nevertheless, in the amounts currently projected, I look upon these debt swaps as a great way for U.S. conservation organizations to leverage money into conservation projects. In effect, these debt swaps are ensuring that Central American governments put a higher level of their fiscal resources into conservation than would otherwise be the case. And speaking as one who argues that this is a wise social and economic investment for the future, I am all for increasing investment for posterity's sake.

Thank you for the opportunity to respond to these questions which really do go to the heart of the challenge of promoting substainable patterns of natural resource utilization in Central America.

Responses of Malcolm Butler to questions asked by Senator Sanford

CORCOVADO NATIONAL PARK BUFFER ZONE

Mr. Sanford:	Could you elaborate on the success of the integrated land use project in Corcovado National Park?
Answer:	Corcovado National Park is the gem of the internationally renowned Costa Rican national park system and the best example of Central American rain forest now under protection. The Corcovado National Park Buffer Zone project, known as BOSCOSA, is a collaborative effort with the Conservation Foundation (CF), the Fundacion Neotropica and the Costa Rican Park Service. This project incorporates practical techniques for natural forest management, local land use planning, environmental education, sustainable agriculture and reserve planning and management in the buffer zone around Corcovado National Park.

This project is in the first year of its five year lifetime and has begun an in-depth analysis of the socio-economic and biophysical characteristics of the communities adjacent to Corcovado. This analysis is being undertaken by CF staff and 3 Costa Ricans--a rural sociologist, a forester, and an agroforester.

Local community involvement has generated a great deal of interest in receiving technical assistance in forest inventories, developing a nursery for native tree species reforestation and environmental education. Environmental education specialists recently presented a workshop to involve local communities in both the planning and implementation of environmental education and how to use it as a tool in rural development projects. In addition to environmental education, the sociologist is also focusing on women-related issues and linkages with the Park Service.

BOSCOSA has initiated the establishment of a Center for Research and Information on Sustainable Development (CIIDS), whose function would be to have public information, technical assistance and research programs focused on sustainable development specifically for the Corcovado area.

The BOSCOSA team is now working on establishing progress indicators, institutional links, a schedule of future activities, and more detailed technical, material and financial resource needs for each of eight subprojects.

INFORMATION ON TEBUTHIURON

Mr. Sanford:	Please provide information on the Reagan Administration's new weapon for its war on drugs--the herbicide, tebuthiuron, which is being tested in Peru?
Answer:	Tebuthiuron is a Class 3 non-restricted pesticide licensed for use in the United States. It is developed and manufactured by Elanco Products Company, a Division of Eli Lilly and Company. It is a broad-spectrum herbicide generally used for bush and weed control in rangeland.

Tebuthiuron enters plants primarily through the roots and works by inhibiting photosynthesis. Studies in Louisiana and field experiments in Peru indicate that in a warm, moist climate tebuthiuron stays in the soil relatively long, with a half-life of about one year. Such persistence is necessary for good control of woody, perennial crops. However, when applied at low to moderate levels, tebuthiuron treatment will not totally eradicate vegetation. Many grasses are tolerant of tebuthiuron treatments, and grass yields and range productivity have improved following treatment with tebuthiuron. Soil mobility is moderate. In terms of toxicity, tebuthiuron does not accumulate in the body. It is not a mutagen or carcinogen, and is less toxic than aspirin.

Tebuthiuron is being considered by the Bureau for International Narcotics Matters (INM) for use in a program to eradicate coca production in Peru. INM has completed an environmental assessment of tebuthiuron (and other herbicides) use to eradicate illicit coca production under the terms of the National Environmental Policy Act. In order to mitigate adverse environmental impacts involving soil persistence, INM is evaluating minimal application rates at the U.S. Department of Agriculture and on research sites in Peru.

Aerial application of tebuthiuron is planned, and is regarded by INM as a well developed technology. Tebuthiuron will be applied in pellets, making likelihood of significant drift minimal.

MOSCAMED/CAPMED PROJECTS

Mr. Sanford: If the environmental assessment A.I.D. is currently preparing on the MOSCAMED and CAPMED projects reveals negative impact to the environment, will the projects be stopped?

Answer: The MOSCAMED program to eradicate Mediterranean Fruit Fly (medfly) from Guatemala is a USDA program, in collaboration with the Governments of Guatemala (GOG) and Mexico, which involves A.I.D. because the GOG contribution to the program is local currency derived from the P.L. 480 program. The proposed CAPMED program to eradicate medfly from Central America and Panama is sponsored by FAO (United Nations Food and Agriculture Organization) and USDA. In 1986 Congress directed A.I.D. to support USDA/FAO efforts to locate funding for CAPMED. Since neither MOSCAMED nor CAPMED are A.I.D. projects, it is not in A.I.D.'s power to stop them, although we could withhold A.I.D. controlled funding.

A.I.D. will complete an environmental analysis of the MOSCAMED program in July but will not begin an analysis of CAPMED until the results of the MOSCAMED analysis have been assessed and preliminary evaluations of the economic and political feasibility of CAPMED have been completed.

If the environmental assessment of MOSCAMED reveals serious negative impact, not justified by the benefits of the project and not susceptible to corrective action, A.I.D. will not approve the use of A.I.D. controlled funds to support MOSCAMED. Such a finding would also almost certainly result in a decision by A.I.D. not to continue efforts to assess the environmental, economic, and political feasibility of CAPMED. A.I.D. will not support either of these projects if they are found to be environmentally unsound.

Natural Resources
Defense Council

1350 New York Ave., N.W.
Washington, DC 20005
202 783-7800

May 24, 1988

The Honorable Terry Sanford, Chairman
Subcommittee on International Economic Policy, Trade,
Oceans and the Environment
Senate Foreign Relations Committee
443 Senate Dirksen Office Building
Washington, DC 20510

Attention: Jerry Connelly

Dear Senator Sanford:

Thank you once again for the opportunity to testify at the hearing on environmentally sustainable development in Central America before the Subcommittee on International Economic Policy, Trade, Oceans and the Environment of the Senate Foreign Relations Committee on April 27. I am responding to the follow-up questions you put to me in your letter of April 28.

I. A.I.D. "EARLY WARNING" SYSTEM

You asked how many environmentally harmful development projects proposed by the multilateral development banks (MDBs) had been identified and actually terminated as a result of information collected through the "early warning" system. You also asked about the quality of reporting from the A.I.D. missions.

No projects identified through the system have yet been rejected as a result of a board vote at any of the MDBs. A.I.D. reports that the United States abstained on eight MDB loans during 1987 for environmental reasons.[1] However, all these loans were approved because they were supported by other shareholders.

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[1] The eight loans are: (1) a World Bank agricultural rehabilitation loan for the Sudan; (2) a World Bank electric power loan to Peru; (3) an Asian Development Bank loan for a paper mill in Nepal; (4) and African Development Bank (AfDB) loan for a slaughterhouse in Botswana; (5) an AfDB loan for a livestock development project in Benin; (6) an AfDB loan for an agriculture, forestry, and livestock development project in Mali; (7) an AfDB loan for a rice irrigation project in Uganda; and (8) an Inter-American Development Bank loan for a road project in Brazil. The United States abstained on an AfDB loan for a road and water project in Burkina Faso in February 1988. In 1986 the United States voted against a World Bank electric sector loan to Brazil for both environmental and economic reasons.

Moreover, of these eight projects only one ever appeared on the semiannual lists published by A.I.D.

This situation demonstrates the need for (1) improved reporting by A.I.D. missions and (2) increased efforts by the Executive Branch to secure the support of other key countries for the environmental reform agenda and for votes on specific loans.

A. Improving the Quality of Reporting

The effectiveness of the "early warning" system is totally dependent on the quality of reporting from the missions. To encourage accurate and thorough reporting, mission personnel must be informed of the existence and structure of the system. There must also be a sense of confidence within the Agency as to the integrity of the functioning of the system.

Unfortunately, there is widespread acknowledgement that reporting is spotty. Some of the projects identified through the system involve secondary problems, while a number of the most environmentally troublesome projects have been listed based on information collected outside the system. Firsthand contacts with mission personnel have demonstrated little or no familiarity with the structure and functioning of the system, even on the part of staff responsible for environmental issues.

While we must be realistic about the quality of reporting even under the best of circumstances, there are some obvious measures that the Agency can take to increase awareness of the system by mission personnel:

- Efforts to improve reporting should focus first on mission staff who are responsible for environmental and natural resource issues. These individuals are the most likely to have relevant information and a professional interest in in-depth reporting.
- Visits to key missions by Washington personnel responsible for implementing the system would emphasize the importance of complete and accurate reporting. While A.I.D./Washington has sent a number of communications to all mission staff describing the system, this is plainly inadequate to elevate the profile of the system.
- The Agency should devote more resources to the system, either by making additional funds available to hire consultants to evaluate individual loans or by allocating funds for Washington staff to make on-site visits.

- Orientation of A.I.D. staff to new posts should include a description of the "early warning" system emphasizing the importance and effectiveness of thorough reporting.

B. Improving Coordination with Other MDB Member Countries

While improving the quality of reporting is important, it is equally imperative to use the information collected through the "early warning" system effectively in securing the support of other MDB member countries. The MDBs are multilateral institutions, and experience has shown that the influence of any one country -- even the United States -- is not very great. For instance, one World Bank staffer told me that the United States' abstention on a huge pesticide subsidy to the Sudan had not had any appreciable effect on Bank staff because the U.S. position had not been supported by other countries.

The "early warning" system is a prime opportunity to create a larger constituency for environmental reform at the MDBs within foreign governments.[2] In reviewing the Executive Branch's implementation of the "early warning" system and other legislation pertaining to the environmental performance of the MDBs, this Subcommittee should ascertain not only the U.S. position on a particular loan, but also what steps the Executive Branch has taken to convince other member countries of the merit of that position. In most cases, the answer has been "not much." Without concerted attempts to lobby foreign governments, there is little chance that the reform agenda set out in Congressional legislation and accepted by the Executive Branch will produce concrete changes at the MDBs themselves.

This Subcommittee can encourage cooperation among MDB member countries in implementing environmental reforms at these institutions by:

- Requesting A.I.D. and Treasury to report on their efforts to secure support from other countries for the reform agenda and for votes on particular environmentally questionable loans; and

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[2] Authorizing legislation enacted during the last session of Congress instructs "[t]he Secretary of the Treasury, in consultation with the Secretary of State and the Administrator of the Agency for International Development, [to] create a system for cooperative exchange of information with other interested member countries on assistance proposals of the [MDBs]."

- Encouraging A.I.D. and Treasury immediately to issue instructions directing the U.S. Executive Director to each of the MDBs to host a seminar for other Executive Directors and interested bank staff to explain the "early warning" system and to offer to share information collected through it.

II. MEDFLY ERADICATION IN CENTRAL AMERICA

You asked whether Central American governments have been concerned about the environmental effects of U.S.-sponsored medfly eradication programs in their countries, and if not, why.

There are several reasons for the Government of Guatemala, whose territory will be most directly affected by the expansion of MOSCAMED, to support the program. First, the United States has tremendous leverage in the region. Given the unstable political climate and the importance of United States support on urgent political issues, the Government of Guatemala may feel pressure to go along with U.S. demands in other areas such as the MOSCAMED program. Second, approximately 1,000 jobs in Guatemala could be lost if the MOSCAMED program were terminated.

Still, no final determination has been made to go ahead with the project either by Guatemala or the United States. One source within the Government of Guatemala has told NRDC that the outcome of the A.I.D. environmental assessment due July 5 will be decisive. This individual said that, "hopefully those with a long-range view will win out over those with short-term interests." The indications we have so far is that the A.I.D. study will be an objective evaluation of the merits and shortcomings of the program. If this is so, then the study should remove some of the pressure exerted by partisan interests in favor of this project. Moreover, jobs need not be lost if, as recommended by NRDC and our Guatemalan counterparts, the money for MOSCAMED operations are redirected to research into alternative, environmentally benign eradication methods.

I hope that the Subcommittee will favorably consider my request made in my April 27 testimony to hold a separate hearing on the A.I.D. environmental assessment when it is complete. I was very encouraged by the response of the A.I.D. witness, who pledged the full cooperation of the Agency if this Subcommittee schedules a hearing. NRDC is prepared to facilitate the attendance of Guatemalan environmentalists and representatives of Guatemalan economic interests, who can give a firsthand account of their concerns.

* * *

I hope I have adequately answered your questions. I urge you to move quickly to establish effective oversight of the "early warning" system and to schedule a hearing to examine the environmental aspects of the proposed MOSCAMED program.

Cordially,

David A. Wirth

David A. Wirth
Senior Attorney

MEMORANDUM

TO: Senate Foreign Relations Subcommittee on International Economic Policy, Trade, Oceans and the Environment

FROM: Walter Arensberg, Director, Environmental Planning and Management Project
International Institute for Environment
and Development-NA, Center of WRI,
1717 Massachusetts Ave. NW,
Washington, DC, 20036

SUBJECT: Response to additional questions on "Environmentally Sustainable Development in Central America" (Hearing of April 27, 1988)

Question #1

What can multilateral development banks do to increase institutional capacity within Central American bureaucracies?

Answer

The multilateral development banks (MDB's) have certain types of influence and leverage that they can exercise to increase the institutional capacity of Central American bureaucracies to carry out programs for sustainable development. Whether or not they can apply them successfully will depend as much on their own internal attitudes and policies and the political receptivity of the Central American governments, as on the specific design of the programs they mount to strengthen particular institutions. For Central America, the recent appointment to the presidency of the Inter-American

Development Bank of Enrique Inglesias, a man whose concern for environment and sustainable development dates to his role in organizing the 1972 UN Stockholm Conference, augurs well for the future.

Assuming the MDBs have incorporated the principles of sustainable, environmentally sound development into their own policies and procedures, the MDB can influence institutional capacity through the conditions it incorporates in loan agreements and the approach it takes in working with an institution throughout the process of planning, design, implementation, monitoring and evaluation of specific projects. The conditions set in loan agreements can call for policy and procedural changes which in turn will require the institution to improve its professional staff, analytical methods, data bases, and/or regulatory systems. Similarly, an MDB's requirements for project preparation, implementation and evaluation can also influence these functions.

Whether the host country institution actually develops the capacity to meet these requirements and/or to develop new policies and procedures on its own, will depend in part, however, on a number of other actions an MDB must take. First of all, it can establish training programs. These programs, which may be as necessary for its own staff as for the staffs of the local government can be most effective if they are conducted in-country and deal with the particular types of problems faced by the country and the institution in question. Although training programs conducted outside of the country should not be ruled out, they run the risk of only offering prestige and little relevant substance to the participant. Secondly, the MDB can offer technical assistance to accomplish specific tasks, such as setting up data management systems or defining new policy incentives, but this type of assistance must not merely bestow new technology but also be designed to train host country professionals and involve collaborating with them on developing approaches which are relevant to the country. Thirdly, an MDB also can help stimulate a productive dialogue between sectoral private interests, NGOs and government institutions which will improve their mutual understanding of issues and alternatives for addressing those issues. Cooperation between public and private groups, with economic, environmental, and political interests is of paramount importance if these interrelated problems are to be solved. With these considerations in mind, MDB policies could be changed to permit them to fund programs and training with NGOs in particular countries.

Question #2

Do you think it would be profitable for Central American bureaucracies to have U.S. agencies, such as EPM and Dept. of Interior, exchange information on administration of environmental programs?

Answer

Exchanges of this sort could be useful if the information is relevant to the situation of the country. It should be provided in Spanish and the context in which it applies should be fully explained. Although EPA or Interior may have material that is useful, information from the UN Environmental Program and other Latin American countries may actually respond more directly to the cultural, political and financial contexts of the Central American bureaucracies. Similarly, local and international NGO's often have information to share and can serve as clearinghouses for specialized subjects. USAID has played a very positive role in promoting exchanges and should be supported in its efforts to continue these activities.

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